OCTOBER 1995
Volume 63 No 10

AMATEUR RADIO

Journal of the Wireless Institute of Australia

Full of the latest amateur radio news, information and technical articles including:

* The WIA — How it Works
* The Travellers' Net on 14.116 MHz
* Short Vertical Antennas and Ground Systems

Plus many special interest columns

Bringing you the best in Amateur Radio — Australias Amateur Radio **SUPERSTORE!**

MFJ Antenna Tuners

MFJ901B	200W Versatuner	$135
MFJ910	Mobile antenna matcher	$42.70
MFJ921	2 mtr 300W tuner	$154
MFJ924	70 cm 300W tuner	$154
MFJ931	Artificial ground tuner	$176
MFJ941E	300W compact GP tuner	$247
MFJ945D	300W mobile tuner	$198
MFJ948	Deluxe 300W (no D/L)	$292
MFJ949E	Deluxe 300W	$337
MFJ962C	1.5kW tapped inductor	$520
MFJ971	200W Portable tuner	$203
MFJ986	3kW Diff-T roller inductor	$652

MFJ989C 3kW Deluxe roller inductor $785

Low-Pass filter for HF

This is the best low pass filter we have tested. Crafted from the finest materials the Bencher low pass filter offers a minimum of 80dB attenuation in tests conducted to measure the harmonic suppression in Ch 2 TV and higher.

MT093 Bencher Lowpass filter **$109**

MFJ784 DSP signal processor

Automatically eliminates heterodynes, reduces noise and interference on SSB, AM, CW packet, AMTOR, PACTOR, RTTY, SSTV, WEFAX and FAX as well as weak signal EME and VHF signals.

New enhanced MFJ784B now available

MFJ784B DSP signal processor **$499**

MFJ Morse keyboards

In the MFJ498, the world's most powerful Morse code keyboard but 32K of lithium battery backed-up memory and a complete code training system, one box! Or you can plug in an iambic key and use the unit as a complete high performance keyer.

MFJ498 32K Morse keyboard & display **$399**

The MFJ452 **'Super CW Keyboard'** has all of the features of the MFJ451 plus a two line LCD display. Nonvolatile memory stores all your messages and settings. Commands can be stored in messages.

MFJ452 Morse keyboard with display **$289**

The MFJ451 stand-alone keyboard has a 200 character type-ahead buffer and two 100 character message memories.

MFJ451 Morse code keyboard **$195**

We're on the move again!

...back to where we were.

After nearly two years in our present home we are moving back to our newly renovated building just two doors away. Come and join us after September 1st for some great specials to celebrate our new home in our old location!

Icoms amazing IC-706 HF+6m+2m mobile — now showing — call for details and pricing!

ICOM W21A dual band hand-held, very last few available now for an amazing **$499**

Call for specials on accesories if you already have one of these or an IC-W21AT

Did you start out on Packet with a BAYCOM modem?

- Like to upgrade to a REAL TNC?
- Well for a limited time you can trade in your commercial Baycom, Cavcom, TigerTronics or similar modem for a 100% rebate on a new MFJ or Kantronics controller.
- Just send in your modem complete with all documentation and a copy of your original receipt and we will allow 100% of the price of the modem (not including postage or insurance) as a trade-in.
- Don't delay, this offer is available for a limited time only. Please call if you have any questions!

Offer is conditional on inspection of your modem. It must be complete, functional and be accompanied by the original manual and basically presentable. You will be advised if we do not accept your unit.

MFJ Performance you can afford!

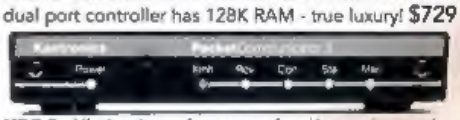
MFJ1278B Multimode data controller, 10 modes including Pactor, AMTOR, RTTY, Packet, CW, SSTV, FAX and more. Latest version with enhanced mailbox. **$649**

MFJ1276 Packet-PACTOR controller for HF/VHF Packet & HF PACTOR. Best value PACTOR around! **$349**

MFJ1270C The latest version of this popular VHF packet controller. 32K enhanced mailbox supplied. Best value packet on the market today! **$259**

Kantronics

KAM+ Multimode mastery, with Packet, AMTOR, PACTOR and new G-TOR as well as CW and RTTY. This dual port controller has 128K RAM - true luxury! **$729**



KPC-3 All the best features of a Kantronics packet controller in a tiny box with low power consumption, optional 128K or 512K RAM, terrific value! **$279**

KPC-9612 Dual port 9600 &1200bps can operate two radios simultaneously. Everything you expect from Kantronics at a price that makes the others jealous! **$499**

DAYCOM Communications Pty. Ltd.
44 Stafford Street, Huntingdale 3166
Bankcard, MasterCard & Visa all welcome
Phone (03)543-6444
FAX (03)543-7238

AMATEUR RADIO

Journal of the Wireless Institute of Australia

Vol 63 No. 10 ISSN 0002-6859 October 1995

Amateur Radio is published by the Wireless Institute of Australia, ACN 004 920 745 as its Official Journal, on the last Friday of each month.

PUBLICATIONS COMMITTEE
Editor
Bill Rice VK3ABP
Production Editor
Bill Roper VK3BR
Senior Technical Editor
Peter Gibson VK3AZL
Technical Editors
Evan Jarman VK3ANI
Gil Sones VK3AUI
Bob Tait VK3UI
Marketing
Norm Eyres VK3ZEP
Bruce Kendall VK3WL
Contributing Editor
Ron Fisher VK3OM

ASSOCIATE EDITORS
Technical
David Brownsey VK4AFA
Don Graham VK6HK
Peter O'Connor VK4KIP
Phil Steen VK4APA
Roy Watkins VK6XV
WIA News
Roger Harrison VK2ZRH

PROOF READERS
Allan Doble VK3AMD
Jim Payne VK3AZT
Graham Thornton VK3IY
John Tutton VK3ZC

DRAFTING
Vicki Griffin VK3BNK
Bill Roper VK3BR

ADVERTISING
June Fox

CIRCULATION
Sue Allan

All contributions and correspondence concerning the content of *Amateur Radio* should be forwarded to:
Amateur Radio
PO Box 2175
Caulfield Junction VIC 3161

REGISTERED OFFICE
3/105 Hawthorn Road
Caulfield North VIC 3161
Telephone: (03) 9528 5962
Fax: (03) 9523 8191

Business Hours: 9.30 am to 3 pm weekdays

Deadlines	Editorial and Hamads
November	09/10/95
December	06/11/95
January	04/12/95

Delivery of *AR*: if this magazine is not received by the 15th of the month of issue, and you are a financial member of the WIA, please check with the Post Office before contacting the registered office of the WIA. ©
© *Wireless Institute of Australia 1995*

CONTENTS

Cover
Roy Chamberlain VK6BO (left) and Peter Harrison VK6HH, managers of the daily 14.116 MHz Travellers' Net which has become an institution in Australian amateur radio. To learn more about this invaluable service, see the article by Maria VK5BMT and Keith VK5MT on page 7 of this issue of *Amateur Radio*.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest National Radio Society
Founded 1910

Representing the Australian Amateur Radio Service
Member of the International Amateur Radio Union
Registered Federal office of the WIA:
3/105 Hawthorn Rd, Caulfield North, Vic 3161

All Mail to:
PO Box 2175, Caulfield Junction, Vic 3161
Telephone: (03) 9528 5962
Fax: (03) 9523 8191

Business Hours: 9.30am to 3.00pm on weekdays

Federal Secretary
Peter Naish VK2BPN

Office Manager
Donna Reilly

COUNCIL

President	Neil Penfold	VK6NE
VK1 Federal Councillor	Richard Jenkins	VK1RJ
VK2 Federal Councillor	Michael Corbin	VK2YC
VK3 Federal Councillor	Bill Trigg	VK3JTW
VK4 Federal Councillor	Ross Marren	VK4AMJ
VK5 Federal Councillor	Bob Allan	VK5BJA
VK6 Federal Councillor	Bruce Hedland-Thomas	VK6OO
VK7 Federal Councillor	Jim Forsyth	VK7FJ

EXECUTIVE

Peter Naish	VK2BPN
Lance Bickford	VK4ZAZ
Rowland Bruce	VK5OU
Neil Penfold	VK6NE

FEDERAL CO-ORDINATORS

AMSAT:	Graham Ratcliff	VK5AGR
Awards:	John Kelleher	VK3DP
Contests:	Peter Nesbit	VK3APN
Education:	Brenda Edmonds	VK3KT
EMC:		
FTAC:	John Martin	VK3KWA
Historian:	John Edmonds	VK3AFU
Honorary Legal Counsel:	George Brzostowski	VK1GB
IARU:	Kevin Olds	VK1OK
Int'l Travel Host Exch:	Ash Nallawalla	VK3CIT
Intruder Watch:	Gordon Loveday	VK4KAL
Media:	Roger Harrison	VK2ZRH
QSL Manager(VK9,VK0):	Neil Penfold	VK6NE
Standards:	Roger Harrison	VK2ZRH
Videotapes:	Bob Godfrey	VK4BOB
ITU Conference and Study Group:	David Wardlaw	VK3ADW
WICEN:	Leigh Baker	VK3TP

SMA LIAISON TEAM

Neil Penfold	VK6NE
Roger Harrison	VK2ZRH
David Wardlaw	VK3ADW

Editor's Comment

Travelling

Your Editor and XYL Margaret have been fortunate so far in our retirement years (*retirement* — what's that?) in that we have been able to travel quite widely around Australia, for our own education, and at our own expense. On 28 July 1995 we were sitting in a restaurant on Norfolk Island, enjoying an excellent meal, when the thought occurred to us "where were we on this day last year?". Reference to my pocket diary showed that then we were travelling (in convoy with VK3OM and others) from Vlaming Head through Exmouth to Coral Bay. This is nearly (but not quite) as far west as the Australian mainland goes. Exactly twelve months later we were about as far east as one can be on Australian territory!

In a few days (I write this on 28 August, just a month after Norfolk) we will be back on the road again, this time right up the Centre to Alice Springs. Although perhaps our tenth trip to the Alice, we hope this time, in our old 4WD, to see several places we've missed on previous trips. And, as always on these road safaris, we will be on the 20 m Traveller's Net every day around 0230z, so that our whereabouts each night can be confirmed, and urgent messages can reach us if necessary.

It is very satisfying to know that safety and personal contact can be so well provided in the 1990s by amateur radio. To cover a continent such as Australia (eight million square kilometres, and nearly 5000 km from east to west) can only be done economically by HF radio. It may not be long before HF is superseded by hand-held ground transceivers working through a constellation of satellites, but much of the continent is still HF country. The Royal Flying Doctor Service has a network of HF transceivers linking outback station properties with their nearest medical and supply centres, but it isn't much use to the casual traveller. The Citizen's Band is even less useful, except when Sporadic E propagation opens up on 27 MHz.

Long live the 20 metre Traveller's Net and its fellow service on 15 metres. You may read more about it in an excellent article by Maria VK5BMY which appears elsewhere in this issue of Amateur Radio.

Bill Rice VK3ABP
Editor
ar

WIA News

International Amateur Radio Permit for the Americas

The International Amateur Radio Union (IARU) in Region 2, which covers the North and South American continents and surrounding island nations, has developed an International Amateur Radio Permit (IARP) which will allow, in conjunction with an amateur's home country licence, temporary operation in any other country in the Americas that has signed the agreement, reports *The ARRL Letter.*

The IARP was developed in IARU Region 2 through the Inter-American Telecommunication Commission (CITEL). Following approval, it was adopted by the General Assembly of the Organisation of American States on 8 June 1995. Permits will be issued in two categories: Class 1, equivalent to US Amateur Extra Class privileges, and Class 2, equivalent to US Technician class. The American Radio Relay League (ARRL) has urged the Federal Communications Commission (FCC) to implement United States participation in the IARP.

The ARRL said the International Amateur Radio Permit would eliminate paperwork for the FCC and for foreign licensed amateurs visiting the US, and US amateurs visiting participating countries in the region.

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers			Weekly News Broadcasts		1995 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Secretary Treasurer	Rob Apathy Len Jones Alex Colquitt	VK1KRA VK1NLJ VK1AC	3.570 MHz LSB, 146.900 MHz FM each Wednesday evening commencing at 8.00 pm local time.	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Secretary Treasurer (Office hours e-mail address: wainsw@sydney.dialix.oz.au	Michael Corbin Pixie Chapple Peter Kloppenburg Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2YC VK2KPC VK2CPK	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24,950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.180, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. The broadcast text is available on packet.	(F) (G) (S) (X)	$66.75 $53.40 $38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 9885 9261 Fax (03) 9885 9296	President Secretary Treasurer (Office hours	Jim Linton Barry Wilton Rob Hailey Tue & Thur 0830-1530)	VK3PC VK3XV VK3NC	VK3BWI broadcasts on the 2nd and 4th Sunday of the month, starts 10.30 am. Primary frequencies 3.615 LSB, 7.085 LSB, and FM(R)s 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH, VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Secretary Treasurer	Geoff Sanders John Stevens John Presotto	VK4KEL VK4AFS VK4WX	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1298.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Secretary Treasurer	Garry Herden Maurie Hooper Charles McEachern	VK5ZK VK5EA VK5KDK	1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555, 7065, 10.125, 146.700, 0900 hrs Sunday	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 351 6873	President Secretary Treasurer	Cliff Bastin Mark Bastin Bruce Hedland-Thomas	VK6LZ VK6RR VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busselton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday, relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) (G) (S) (X)	$60.75 $48.60 $32.75
VK7	Tasmanian Division 52 Connaught Crescent West Launceston TAS 7250 Phone (003) 31 9608	President Secretary Treasurer	Andrew Dixon Robin Harwood Terry Ives	VK7GL VK7RH VK7ZTI	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) (G) (S) (X)	$69.00 $55.65 $40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).						

Note: All times are local. All frequencies MHz.

Membership Grades
Full (F) Pensioner (G)
Needy (G) Student (S)
Non receipt of AR (X)

Three-year membership available to (F) (G) (X) grades at fee x 3 times.

Administration

The WIA — How it Works

Val Bergman-Harrison explains the structure and operation of the Federal WIA.*

It is apparent that the structure and operation of Federal WIA is not widely appreciated among Division's members. Indeed, some WIA Federal Councillors have expressed the view that there is considerable confusion and misunderstanding about the structure of the WIA, the Divisions and the membership and how they all relate to one another. The changes foreshadowed at the 1995 Federal Convention at the end of April, as detailed in *WIA News* in the June issue, have probably engendered further puzzlement.

This article attempts to clarify the situation for all and is based on a presentation given to the Federal Council at the April 1995 Federal Convention.

The WIA is a Company

The Wireless Institute of Australia, which we commonly know as 'WIA Federal", is a public company, but a little different from familiar public companies such as BHP and Woolworths, etc which are listed on the stock exchange. These companies sell shares to people and other companies, and distribute a portion of their profits to the shareholders. The shareholders are known as the members of the company.

The WIA is a special class of public company in that it does not issue shares and has no registered shareholders, as such. In terms of company law, that is the Corporations Law, it is known as a "Section 383" company and is permitted to omit "Limited" from its name. All this you can see in the accompanying reproduction of the company extract from the Australian Securities Commission (Figure 1).

But if the WIA doesn't have shareholders, how can there be "members" of the company? In this type of company, "members" pay a subscription to belong to the company. In the case of WIA Federal, there are only seven members. These are the seven state organisations, the Divisions, which are actually separate, autonomous bodies. They are not "branches" or "subsidiaries" of WIA Federal.

The purposes for which the WIA Federal company is formed differ from public companies with shareholders in that the WIA does not, and cannot, distribute any of its surplus funds — or profit — to the members of the company. The WIA exists for basically altruistic purposes — to foster and promote the hobby of amateur radio, promote and conduct national and international contests, and represent the amateur radio service at the national and international levels.

In international amateur radio affairs, WIA Federal has an exclusive role in dealing with the amateur radio organisations of other countries, the International Amateur Radio Union (IARU) and international regulatory authorities such as the International Telecommunications Union (ITU).

A Section 383 company, such as the WIA, is also known as a "not-for-profit" company. That doesn't mean to say that the company cannot undertake activities which earn it a surplus over costs, a profit. It simply means that the purpose of the company is not to make money and distribute it to the members — the shareholders — as do public companies listed on the stock exchange. What surplus funds WIA Federal may generate are used to foster the interests of the Institute and the amateur radio service.

But, shareholders or not, the structure of the WIA Federal company otherwise closely parallels those public companies listed on the stock exchange. Under the Corporations Law, public companies have three fundamental components:

1. The company itself, which is regarded as an entity on its own;
2. The members of the company — those who want the company formed, and run, for a specific purpose or purposes;
3. The directors of the company — who manage its operation or activities on behalf of the members of the company.

You can see the three basic components of the company in the "map" shown in Figure 2. The WIA's Articles of Association establish the structure you see in this map.

COMPANY EXTRACT 25/07/1995 13:20:39 PAGE: 1

004 920 745 THE WIRELESS INSTITUTE OF AUSTRALIA DOCUMENT NO

AUSTRALIAN SECURITIES COMMISSION

Australian Company Number: 004 920 745
Incorporated in: VICTORIA
Previous State Number: C0091915R
Registration Date: 17/01/1972
Principal Activity: AMATEUR RADIO MEMBERSHIP SOCIETY

Current Organisation Details

Name : THE WIRELESS INSTITUTE OF AUSTRALIA 001 367 010
Name Start: 17/01/1972
Status : REGISTERED
Type : AUSTRALIAN PUBLIC COMPANY
Class : LIMITED BY GUARANTEE
Subclass : COMPANY LICENCED TO OMIT "LIMITED" FROM NAME

Registered Office

STE 3, 105 HAWTHORN RD, NORTH CAULFIELD, VIC 3162 001 367 010
Start Date: 27/05/1991 (AR 1990)

Figure 1 — Company extract for the WIA (Federal), from the Australian Securities Commission's companies database.

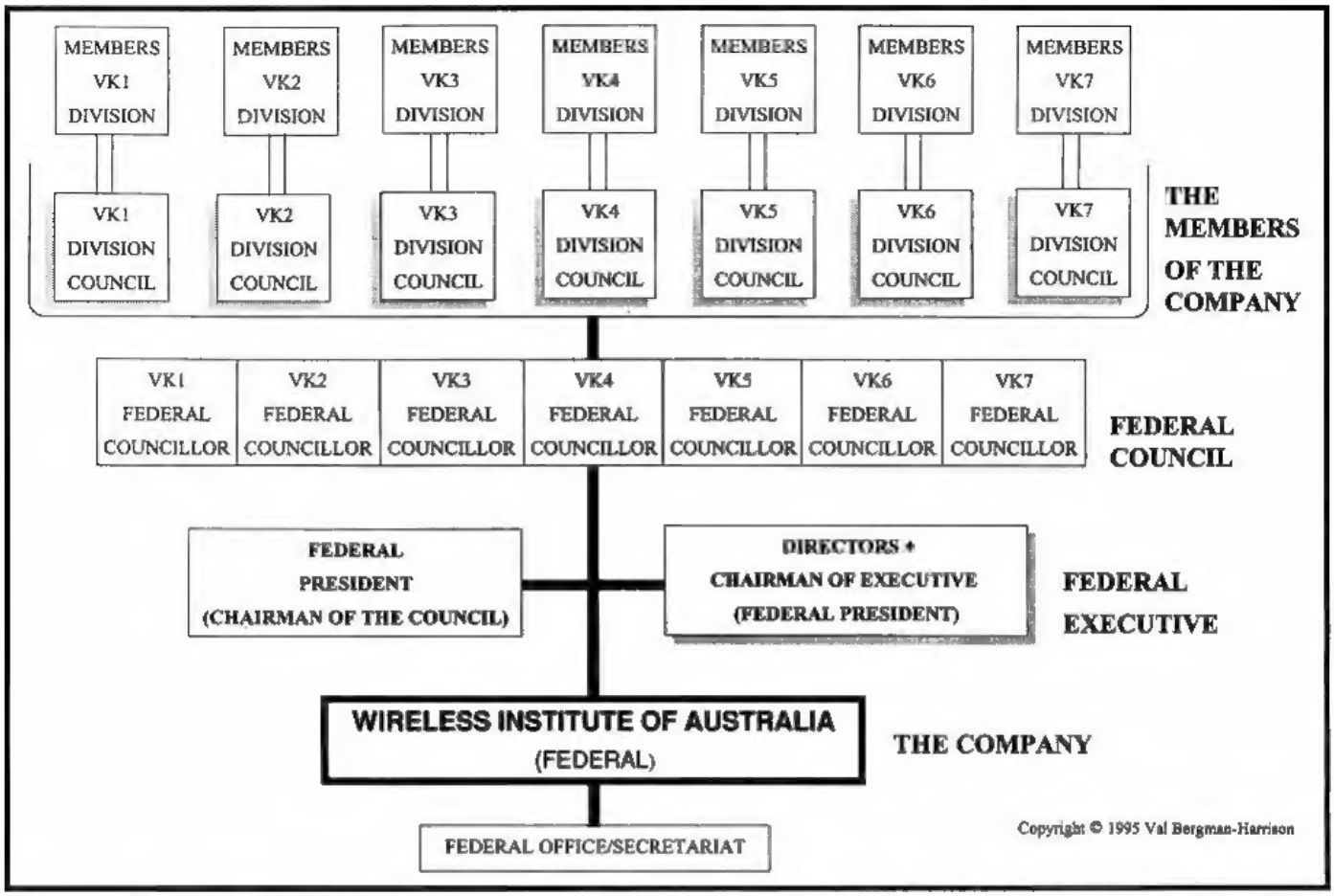


Figure 2 — "Map" of the WIA Federal company structure, which is a federation of the Divisions, showing *relationships* between the Federal Executive, the Federal Council, the seven WIA Divisions and the Divisions' members. This should not be confused with a conventional "organisation" chart, which shows directional "lines of command".

WIA Federal and the Divisions

The members of WIA Federal — the seven state Divisions — are, as explained above, autonomous, in the same way a person is autonomous. The members of each Division — who are subscribers to their Division (whether it be an Incorporated association, as in South Australia, or another Section 383 company, as in NSW and Victoria) — are separate and connected directly *only* with their own Division. As a "member of the WIA", you are a member of the particular Division to which you have subscribed. That is, you are a member of the WIA ACT Division, or the WIA NSW Division, or the WIA Victorian Division, etc, as the case may be.

The Division councils each appoint a representative — the Division **Federal Councillor** — who "stands in" for their Division at meetings of the WIA Federal company. As a group, the seven Federal Councillors are called the *Federal Council.*

The **directors** of the company form the *Federal Executive,* otherwise known as the board of directors in other public companies. The directors on the Federal Executive are appointed by the Federal Council under the rules of the Articles of Association.

The **Federal Secretary** is the company (WIA Federal) secretary.

WIA Federal — How it Works

Under the Corporations Law, the directors of a company "stand between" the members of the company and the company as a corporate body, and see that, through the employees, the company pursues the purposes for which it is formed.

The meetings of members of a company serve to set out the broad lines of policy of the company. In those familiar public companies of the stock exchange, the members of the company effectively "stand back" and leave the month-to-month management of the company to the directors. In turn, the directors leave the day-to-day activities to the employees, but provide aims and direction according to the policy lines determined at meetings of the shareholders (the members). A company's employees work for, and owe their loyalty to, the company as an entity.

The WIA's Articles of Association, however, differ from this general scenario in that they allow the Council to manage the Institute generally, as well as providing some specific powers. So, the members of the WIA Federal company, through their Federal Councillors, establish the Institute's activities, its operating policies and direction. The Federal Executive is responsible for seeing that the company operates as the Federal Council intends, manages

the financial operations and reports on the financial performance to the Federal Council.

Under the Corporations Law, the directors owe the company what is known as a "fiduciary" duty. That is, the directors are entrusted to manage the company on behalf of the shareholders (the members). The nature of that duty is of "good faith and loyalty". Directors have an obligation to act in the interests of the company as a whole — *not* to individual shareholders (or members).

In the case of the WIA Federal company, while the individual members of the Federal Executive (being directors) will belong to a Division, they are not, and cannot act as, their Division Council's "delegate" or "representative" on the Federal Executive. They cannot act under instruction from their Divisional Council. Such would be contrary to their duties under the Corporations Law.

Each WIA Division has a "representative voice" *only* on the Federal Council. At Federal Council meetings, the Divisions" Federal Councillors may act under general instruction, or specific instruction, on business being considered by a meeting.

The annual general meeting of the Federal WIA company is called, according to the Articles of Association, a *Federal Convention.* This is a meeting of the members of the company to hear reports of its financial affairs, and the operations and activities carried on throughout the previous year. In addition, matters of policy are also decided. In recent years, the Federal Council has held three other general meetings between Federal Conventions, as a matter of policy, at more or less quarterly intervals. These are called *Extraordinary Conventions.*

The Federal President is both the Chairman for Federal Council meetings and the Chairman of the board of directors — the Federal Executive. When chairing the meetings of Federal Council, he has no vote, only the seven Federal Councillors may vote. When chairing meetings of the Executive, however, the President may vote. The Federal President, being the President of the Council and the appointed chairman at Federal Council meetings, provides the only direct link between the Federal Council and the Federal Executive (the board of directors).

The Federal Office

The WIA Federal Office acts as a secretariat, to perform functions as set down by Federal Council policy, such as centralised maintenance of the Divisions' membership records, the publication of *Amateur Radio* magazine and the annual Call Book, secretarial functions relating to WIA Federal's various activities such as correspondence with international amateur radio societies, the keeping of the company's accounts, etc. The Federal Office is *not* WIA Federal.

The Federal Secretary is an employee of WIA Federal and under the Articles of Association is responsible for the preparation of company financial reports for the Federal Executive (the directors) and the Federal Council, the calling of company meetings, along with performing statutory duties of the company — that is, preparation and submission of the company's annual report to the Australian Securities Commission, preparation and submission of statutory notices (eg change of directors), etc.

This, in a succinct summary, is how the Federal WIA conducts its affairs.

Dispelling Some Fallacies

- The Wireless Institute of Australia (Federal) is not a "Division" — there is no "Federal Division".
- Members of, say, the WIA ACT Division or the WIA Victorian Division, are just that — not generic "members of the WIA".
- Each Division Council has a "representative voice" on the Federal Council, in determining policy for the Federal WIA.
- While the individual members of the Federal Executive (being directors) will belong to a Division, they are not, and cannot act as, their Division Council's "delegate" or "representative" on the Federal Executive.
- The Federal Office is not "the WIA". It is an administrative office, or secretariat, for the Federal WIA.

"LMB 888, Woollahra NSW 2025. Val Bergman-Harrison, a member of the NSW Division, is a company change management consultant.

ar

WIA News

New Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of August 95.

L21001	MR P J LOCKLEY
L21002	MR J C CRAIGEN
L21003	MR K W PILLEY
L21004	MR E SEDDEN
L30915	MR I BENSON
L60343	MR M J SAXON
L60344	MR D J PETERKIN
VK2IDS	MR B KATES
VK2IN	AAPRA
VK2NCE	MR J W GAYNOR
VK2TGR	MR B WINTER
VK2UBF	MR B FARRAR
VK2WGY	MR G KAMAT
VK3OD	MR D J GOSS
VK3SX	MR R ROBINSON
VK3ZLN	MR L N CLARKE
VK6VE	MR H M GILMOUR
WB4ZDU	MR R G SMITH

The WIA also bids a warm welcome to the following new members whose names were accidentally omitted from publication in the April 95 issue of *Amateur Radio.*

L30908	MR R RAMM
VK3APK	MR P PERKINS
VK3CAP	MR A P POWER
VK3DPI	MR D R WATSON
VK3LPM	MR R C MACKAY
VK3TUE	MR B P MITCHELL
VK3ZIP	MR M KROCHMAL

■ Operating

The Travellers' Net on 14.116 MHz

Maria McLeod VK5BMT and Keith McLeod VK5MT explain all you need to know about this popular net.*

Australia is a large country and the realisation of this becomes apparent when travelling by vehicle. It is this vastness of distance that creates a degree of anxiety for first time travellers (and for some of the more experienced).

Many travellers now stay on the road for periods of, typically, three to five months every year, mainly during the southern winter months. During this period, those travellers who are licensed amateurs (full call) regularly use the very professional services of the VK6 Perth based Travellers' Net which is managed by Roy VK6BO and Peter VK6HH.

As we are regular users of the 14.116 MHz Net it has become apparent that, due to the ever increasing number of amateurs now travelling, a set of guide lines on how best to operate on the Net would be appropriate.

During the peak of the "season" (June, July and August) we have logged as many as 60 amateurs on any one day calling in to the Net to report their geographic position and to inquire of any traffic of a personal nature. In order to improve the overall efficiency of the Net, Peter VK6HH has prepared a set of guide lines for those amateurs using, or contemplating using, the facilities provided.

Aims

To provide:—

1. Any urgent or priority traffic or relays to and/or from travellers as required.
2. A time/frequency for travellers to meet and arrange a QSY up the band (a central "get together" point).
3. A terminal point (Peter's and Roy's phone numbers) where messages can be left by family or friends for relay to travellers when they call in; or just an enquiry from friends or relatives if they want to know where travellers are located at last call.
4. A known time and frequency where a traveller can guarantee a

ATN ANTENNAS P/L

56 CAMPBELL ST, Birchip 3483 ACN 062557644
Phone: (054) 92 2224 Fax: (054) 92 2666
PO Box 80, Birchip, 3483

AUSTRALIAN COMMERCIAL AND AMATEUR ANTENNA MANUFACTURERS — SINCE 1952

Ask for a free catalogue

We manufacture a comprehensive range of HF, VHF and UHF antennas, baluns, power dividers etc. Log periodics provide continuous coverage from 13-30MHz (incl. WARC bands) and replace outdated tri-banders. Also 10/30 & 7/30 MHz. Now in use in 42 overseas countries and all continents.

- Rotators by Create. Coax cables. Non-conducting guy/halyard materials by Phillystran.
- B&W all frequencies 1.8-30MHz end-fed vee. All frequencies 3.5-30MHz folded dipole. 10W, 100W, 1kW. No radials required. Diamond 80-40 & 80-10 trapped dipoles and accessories.
- Hard-drawn copper antenna wire and insulators.
- High gain VHF & UHF amateur, scanning & TV antennas.
- Butt-section triangular aluminium towers for fixed or tilt-over applications also HAZER ASSEMBLIES.
- Selections of power chips and TX tubes at friendly prices.
- VSWR/PWR metres by Diamond to 1300MHz; 10 models. All in stock. New 2m, 70m + 2/70cm for mobiles from $132.
- WARNING WARNING WARNING. Manufacturers worldwide are ceasing production of "VALVES", "VACUUM TUBES", ETC. JAN/ECG/PHILIPS in the USA have run last production of 6146W a rugged version especially for Collins S-Line ETC. Shortly, users of transceivers will have to discard them due to no replacement tubes. "WE HAVE GOOD STOCKS" 6146W $50.00: MP $115.00. ACT NOW & DON'T MISS OUT!!! !!!

BANKCARD MASTER & VISA CARDS ACCEPTABLE

For declining HF propagation conditions we are introducing our latest range of Log Periodic Antennas for the discerning Amateurs. We use all stainless steel hardware, 6351-TE aluminium for booms & elements. Phillystran hangers & anti-sway braces on all models.

1/- 10-30-10 (10-30 MHz CONTINUOUS COVERAGE WITH 10 ELEMENTS). 10.5MX BOOM. $1995 & FRT

2/- 7-30-11 HD. BOOM 12MX. $2550.00 & FRT

3/- 7-30-11 EHD. BOOM 14MX. $2775.00 & FRT

MONOBANDERS FROM 7MHZ IN HD & EHD. 1,2,3 & 4EL.

NEW MATCHALL FULLY AUTO COUPLER 1.5-30 MHz 150 WTS TO ANY RANDOM WIRE LENGTH. NO KNOBS OR EXT. POWER INCL. AIR FREIGHT $299.00

NEW AEA SWR 121 HF & SWR 121 VHF/UHF ANTENNA ANALYST. SELF-CONTAINED SIG. GEN., SPECTRUM ANALYSER & GRAPHIC DISPLAY OF VSWR, OPTIONAL SOFTWARE FOR PRINTOUT. HF $750. V/U $850 incl. fragile freight.

4/- NEW: SOLE DISTRIBUTOR (AUST/NZ) FOR HI-SIERRA REMOTE CONTROLLED, CENTRE LOADED MOBILE WHIP ANTENNA — 3.5-30 MHz CONTINUOUSLY
SPECIAL INTRODUCTORY PRICE: $659.00 (incl. freight)
ALSO SOLE DISTRIBUTOR AUST/NZ FOR RAMSEY INC. TEST EQUIPMENT & KITS — SIMILAR TO HEATHKIT — MORE DETAILS AVAILABLE SOON.
ATN IS AN AEA DIRECT IMPORTER.

contact in the event of a breakdown (it is assumed that anybody driving into the hinterland will take the normal precautions of having sufficient food and water to sustain them for at least a couple of days).

5. A relay service between travellers where required.

Urgent Traffic

A call is made at 0250 UTC for anyone who may have urgent or priority traffic; all stations cease transmissions and listen for possible weak signals.

This is repeated by the South Australian relay station or, if it is not available, then the Victorian relay station.

Modus Operandi

All call/traffic should initially go through the Net control station, otherwise the system will fail and become unmanageable!

1. The Net commences at 0300 UTC for 365 days of the year and includes all holidays, even Christmas day. One of the operators is normally listening at least 30 minutes earlier (0230 UTC) in case anybody wishes to call in early.
2. At 0300 UTC the Perth based net control station opens the "Travnet" and does a readback of all reports which have come in early. At the end of the readbacks he asks for any contacts for those who reported in early.
3. After any contacts have been finalised, and the necessary QSYs made, the beam initially is pointed towards the east (from Perth) and calls are made for mobiles or portables in southeast Australia.
4. The Perth Net Control station then rotates his beam anticlockwise around Australia passing through Queensland/Central Australia, Northern Territory, Northwest Australia and finally the Indian Ocean, making appropriate announcements of beam direction and requests for any calls.
5. When that is completed the relay stations (listed later) are requested to go through the same procedure. The South Australian station rotates his beam clockwise from west to east and makes the appropriate announcements. The Victorian station normally points west, and then north, and makes appropriate calls. Other NSW relay stations, using omni-directional antennas, make a couple of general calls for travellers who have no contact with the Net Control Station. The Queensland station normally goes through a similar procedure but with some change in beam direction.
6. A final call is made from Perth for any mobiles/portables who have not yet been acknowledged, followed by a call for any general enquiries for the "Travnet".
7. The South Australian relay station then makes a final call to the west for any latecomers. This is followed by a general call from Perth for anybody at all for the Net, prior to closing. If nothing is heard, the "Travnet" is closed for the day and the Perth station monitors the frequency generally for 15 to 20 minutes after closure.

Points to Note

There are times when there can be many mobile stations waiting to check in and get on their way. In order that they not be delayed too long, it helps if reports by mobile and portable stations are concise and to the point; that is, where you are and where you will be overnight. Any travellers wanting to pass road and/or weather information to another traveller can QSY up the band. This leaves the net frequency free for use by other mobiles reporting in.

As a general rule the Net controllers try to finish the "Travnet" by 0330 UTC. This is because there is another net (the DDD Maritime Net operating out of Vancouver with relay stations in New Zealand and Tasmania) which commences its warm up period at 0330 UTC on 14.115 MHz. We have an arrangement where we try to keep the frequency clear of QRM where possible. Urgent matters, of course, must be attended to and finalised. However, if that causes a run over of time then we live with it.

General Comments

At the time of writing, the following stations participate regularly in the Net.

Control Stations

VK6BO Roy or VK6HH Peter

Relay Stations

SA	VK5RI Bob
Vic	VK3ZT Maurie
NSW	VK2IV Roy, VK2BIK Max, VK2AMM Bill, and sometimes VK2ALH Les, VK2CJD Jack
Qld	VK4FA Don

The above list is not complete. There are many others who help out from time to time. We hope they will excuse us for not listing them as it would make it too long. Rest assured your presence is very much appreciated by the Net Controllers when you can make it.

How Family Can Contact the Net

The telephone numbers are:— VK6HH Peter, 09 397 5772; VK6BO Roy, 09 331 1825; VK5RI Bob, 088 93 4001; and VK3ZT Maurie, 03 803 2336.

It would be appreciated if, when family or friends are ringing for information or to pass a message, they remember the time difference of two hours (summer time, three hours) between east and west. If the matter is urgent, of course, this doesn't apply — ring anytime. Also, travellers please make sure your family/friends have your callsign and quote it when ringing as the Net often has more than one traveller with the same name.

Net Operation

The Net recognises that, in a mobile situation, you are often subject to noise, and maybe weak signals, and sometimes misunderstand what the Control Station is saying. This can cause you to come in at the wrong time. Well, it's not that important. The Net tries to keep a more or less strict system in operation so that it flows smoothly, but there is always room for some variation.

If you are not familiar with the Net procedure, then listen on the frequency for a couple of days and you will soon get the idea. Just drop your callsign into the system — it will smooth out as the Net goes along.

The following are some technical tips for base stations and mobile operators:

Base Station Operators (who are part of the Net or interested listeners)

1. When not actually transmitting, ensure that your VOX is switched off (frequently a weak mobile station is drowned out by extraneous background noises in the shack being sent to air).
2. Ensure that your transmit frequency is netted exactly to that of the Perth Control Stations. Use your receive "clarifier" if you must; however, it is very helpful to the mobile station if you are transmitting on the same frequency as the control station (or at least within 50 Hertz!).

It is very difficult when operating mobile to adjust the receive frequency with the "clarifier". However, on most modern HF transceivers all that is required is to dial up 14.116.00, operate "FREQ LOCK" or place in "MEMORY", and the frequency will be correct.

Mobile/Portable Operators

The most common and frequent problem which seems to plague mobile stations is one of low voltage. Most modern transceivers are designed to operate with a voltage of 13.8 plus or minus 15%. This voltage is required at the input connector at the rear of the set. When this voltage falls the various phase-locked loops in the transceiver can become unstable causing severe distortion of the transmitted signal.

The poor man's cure for this is to start the engine of the vehicle, thus causing the vehicle battery to be charged by the vehicle alternator which, in turn, raises the voltage at the transceiver towards the required 13.8.

The correct remedy for this problem is to ensure that the cable from the vehicle battery to the transceiver is of sufficient diameter to carry 20 amps with minimum voltage drop. Page 203 of the 1994 Dick Smith catalogue will help in determining the correct size of cable.

Typically the power requirements are expressed as a percentage variation centred on 13.8 V, or as simply a spread, eg 12-16 V. All of these specifications are for a current drain of 20 amps. In case of a percentage variation relative to 13.8 V of plus or minus 15%, the allowable voltage variation at the radio power input connector would be 11.73 — 15.87, that is plus or minus 2.07 volts.

If the particular transceiver has a specification of 12-16 volts, it then follows that the only method of obtaining 12 volts at the radio input (when transmitting at maximum power output) is to start the vehicle engine which will raise the voltage at the radio towards the required minimum of 12.

All we need to say now is safe travelling.

1 Hawkins Avenue, Flinders Park, SA 5025

■ Antennas

Short Vertical Antennas and Ground Systems

Ralph Holland VK1BRH details his approach to designing an efficient vertical antenna.*

Introduction

There has been a number of articles discussing the merits or otherwise of various types of ground systems. The analysis of such systems is complicated by the facts that practical ground system parameters are difficult to quantify, antennas are situated in less than ideal locations, and literature, that may provide insight into what is happening, often does not present the information in a practical or applicable form. Often the reader is left to extrapolate beyond the bounds of presented data and arrive at the incorrect conclusion. Some folk-lore has been generated as a result of these types of difficulty; one such lore is "the higher the better", which is an over-generalisation if said without qualification.

Activities

I am interested in 160 m operation; it is a challenge to develop reasonably efficient antennas for this *"top band"*. I am also interested in mobile and portable work so I constructed antennas and experimented a bit. It was difficult to quantify the results and performing alterations was rather tedious, so I turned to computer simulation.

After performing several different simulations I developed the feeling that it should be possible to optimise the efficiency of an antenna by altering its earth currents and through the interactions with the mutual impedance of the antenna and its ground image. This turned out to be a very fruitful study, although I initially thought the results were dubious!

Simulations

Fortunately non-ideal antennas have been under analysis by various organisations and many papers have been written covering the theoretical aspects. One organisation of note is the Lawrence Livermore National Laboratory, which was commissioned by the US Department of Defence to perform theoretical and practical analysis of various antenna systems. Some of this material has been declassified and is now publicly available.

During this period several computer-based antenna simulation programs were developed; of note is the Numeric Electromagnetic Code (MINI-NEC, NEC-2 and NEC-3).

NEC-81 is the name for the PC version of NEC-2. NEC-81 and MINI-NEC are available through the

Applied Computation Electromagnetic Society (ACES); contact Dr R W Adler, ECE Department, Code EC/AB, Naval Post Graduate School, 833 Dyer Road, Rm 437, Monterey California, 93943-5121, USA (Fax 1 408 649 0300, E-mail 554-1304@mcimail.com) for the conditions, membership and handling fees if you want to obtain these programs.

NEC-81 can model antennas in proximity to lossy ground. The lossy ground analysis is based on work by Sommerfeld; and appears to yield realistic feed-point impedances and reasonably quantifiable losses.

System Performance

The simulation goal was to determine the relative merits of elevated groundplanes for short vertical systems, ie up to 0.25 wavelengths.

Traditionally, it has been convenient to measure the feed-point impedance of the lossy antenna system and compare it with the ideal (theoretical) case. The feedpoint resistance for vertical antennas is called the base resistance (Rb); Rb is composed of the useful radiation resistance (Rr) and the collective loss resistance (Rl). Rr can be evaluated theoretically — it would be the Rb of an antenna over ideal infinite ground.

Rr can be obtained by the additional simulation of the ideal ground model, effectively doubling the simulation time to obtain results. Fortunately, NEC-81 calculates the amount of power radiated around the region of the antenna and divides this by the applied power. This ratio depends upon whether the model is simulated in free space or over ground.

The radiation region of an antenna in free-space is a solid sphere so this ratio should be unity. The radiation region is a hemi-sphere when the antenna is situated against an infinite ground, in which case the value should be close to two; this is due to the ground reflecting power into the upper hemisphere (effectively up to 3 dB of gain). This ratio is also used to gauge the stability of the model; if its value greatly exceeds the expected value then the model has failed.

It is a simple means to use this power ratio to determine the antenna's efficiency. Note that the radiation resistance can be derived via: Rr = Rb/efficiency. I used this analysis to cross-check the results of some simulations.

Results

The term displacement is employed for the height of the groundplane above ground; this avoids confusion with antenna element lengths. All lengths, heights and displacements are measured in wavelengths (lambda) unless otherwise indicated.

Resistance versus Groundplane Displacement

Figure 1 shows the effects of various displacements upon a 0.10 wavelength vertical antenna with three 0.10 wavelength radials at 1.825 MHz. I chose the average ground parameters: relative dielectric constant 13 and conductivity of 5 milli-Siemens per metre (13,5); which are typical for dry clay and indicative of the Canberra region.

Note that the Rb is high at zero displacement, much higher than Rr, so Rb is largely composed of loss

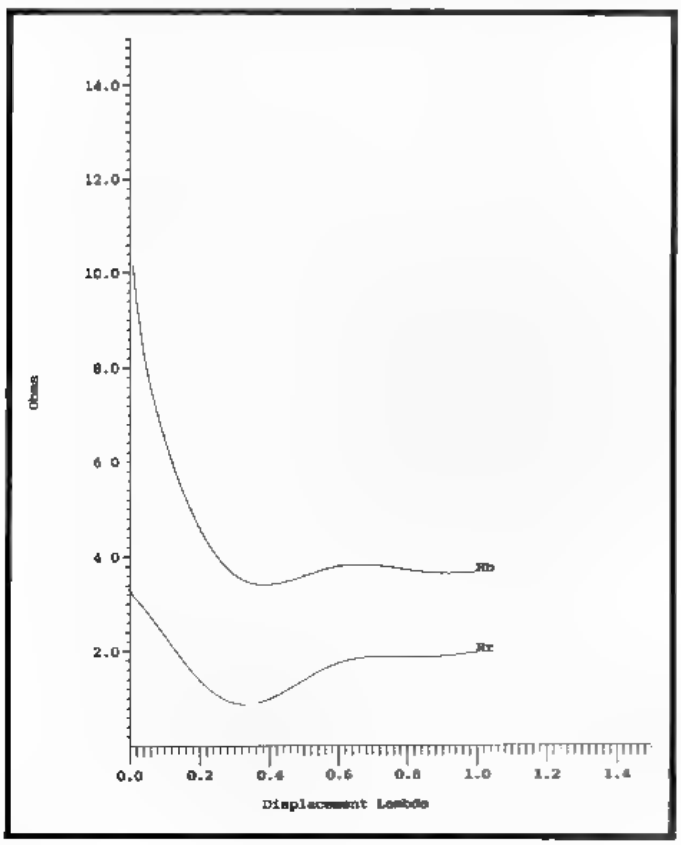


Fig 1 — 0.10 wave radiator/radials * 3 @ 1.825 MHz (13,5).

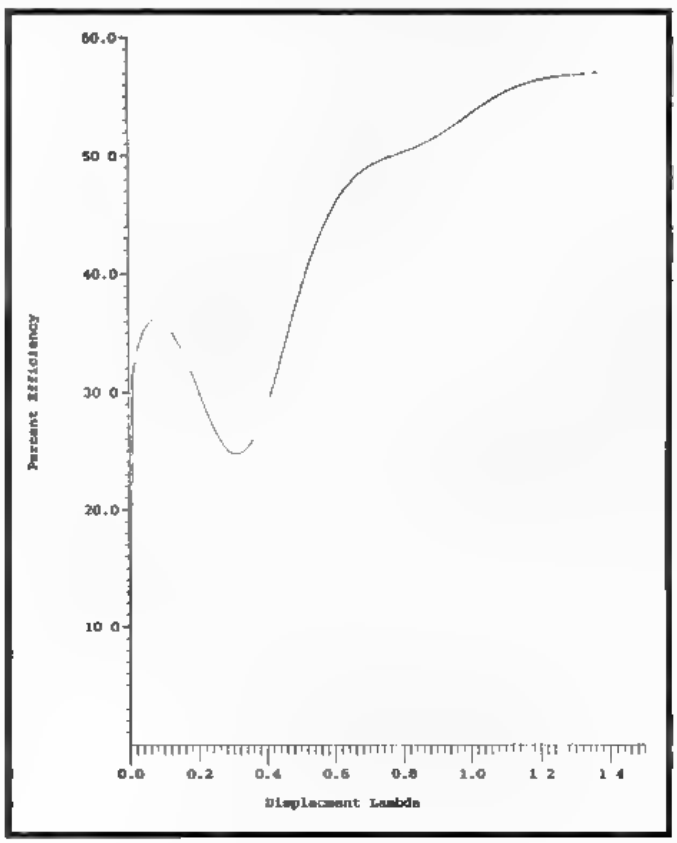


Fig 2 — 0.10 wave radiator and radials * 3 @ 1.825 MHz (13,5).

resistance at this point, and the antenna is primarily heating the ground! Notice how difficult it is to determine the optimal displacement from the Rb and Rr curves on this graph.

Efficiency versus Displacement

Figure 2 shows the antenna's efficiency over the same range. Notice that there is an initial peak at fairly low displacements. Advantage will be taken of this effect.

Displaced Antennas versus the Number of Radials

Figure 3 is the comparison between the conventional groundplane, situated on or in the ground, and the elevated groundplane. The simulation parameters are 1.825 MHz, 0.25 wave radiator and radials, and ground parameters (13,5). The integer simulation points are joined to form curves (I did not actually simulate a non-integral number of radials).

Notice that the elevated curves are asymptotic to a horizontal line about 37 percent efficiency. The elevated curves are more than satisfactory at the three to four radial mark; the traditional ground screen does not even get near this at 32 radials. Recall that the typically quoted commercial design figure is to strive for 120 ground-based radials.

Variable Radiator, Radial Length and Displacement versus Number of Radials

Figure 4 illustrates the effect of radiator and radial lengths. The simulation is at 1.825 MHz and for ground parameters (13,5). The top curves represent the elevated groundplane, while the bottom curves are for ground-based antennas. The upper curve of each set is for a 0.25 wave radiator with 0.25 wave radials, while the less efficient curve in the set is for a 0.10 wave radiator and 0.10 wave radials. Notice the large degradation for the short ground-based system!

Variable Radiator and Radial Length at a constant Displacement

Figure 5 is the graph for a 1.825 MHz vertical, which was simulated for Eric VK3AX. This simulation was based on three radials mounted at 20' (woolshed height) over typical clay soil (13,5). We were interested in the affect of the antenna height and radial length. The radiator length was labelled on the graph in wavelengths and feet. You will notice that short radiators performed quite well with radial lengths of 0.15 wavelengths and appear worthwhile constructing. When the radiators are lengthened from 0.06 wavelengths to 0.15 wavelengths, the efficiency improves by 5 percent. Not much gain results from extending radiators up to the full 0.25 wavelength; in fact, this length was noticeably less efficient than the 0.148 wavelength radiator. In all curves there is an optimal radiator and radial length. Notice how the optimal radial lengths are noticeably less than a quarter wave for the shorter radiators.

Efficiency of Elevated Groundplane and Frequency

Figure 6 shows the effects of changing frequency. The analysis has been performed for the 160, 80, 40 and 20 metre bands so you can apply

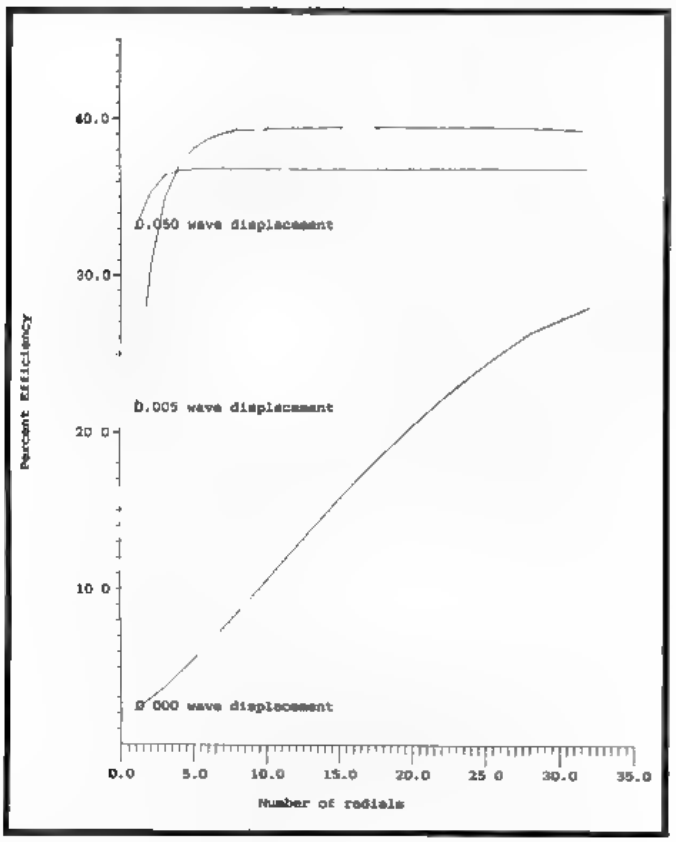


Fig 3 — 0.25 wave radiator/radials labelled by displacement.

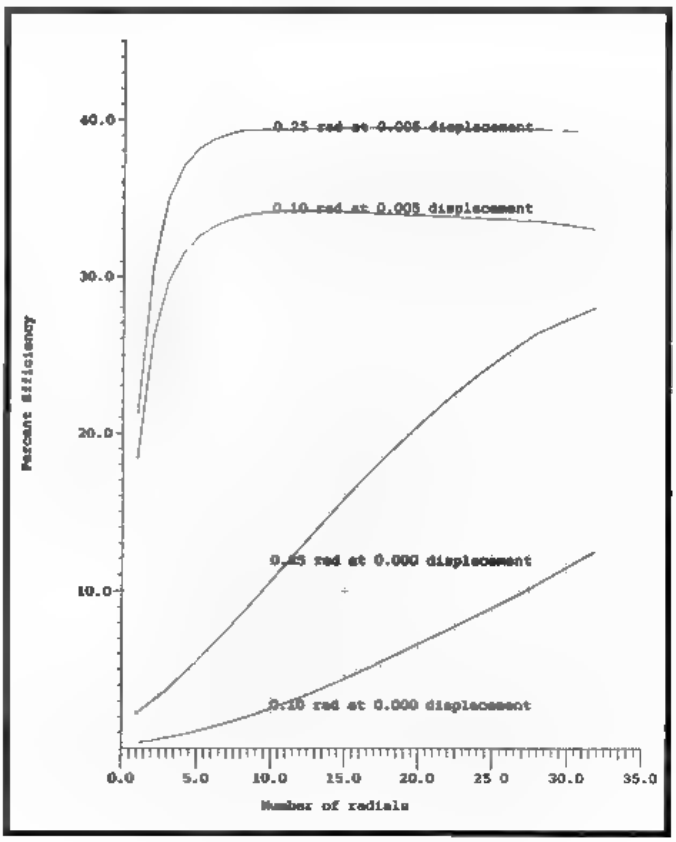


Fig 4 — Radiator/radial length and displacement.

these results to your favourite band. All radiator and radial lengths were 0.25 wavelength and in all cases only three radials were employed.

Each curve is labelled by its ground parameters. The curves could be named from top-to-bottom as: Perfect, Sea water, Good, Average, and Poor respectively. Recall that the Average curve, labelled (13,5) is indicative of the dry clay soils.

Notice that the curves peak between 0.002 and 0.05 wavelengths displacement. A more difficult observation, due to the scale of the graphs, is that the curves point steeply towards zero efficiency at zero height (you can obtain a better indication from Figure 2).

Conclusions

From the Figures it is obvious that the simulated antenna efficiency declines dramatically when the groundplane displacement approaches zero.

With three or more radials the radial length is more important to the overall efficiency than the number of radials, with a few exceptions. An interesting side-effect I noticed is that under certain conditions a vertical antenna with one radial was substantially more efficient than an antenna with any other number of radials; such a hybrid antenna has been studied before and been applied in marine and land-based systems. (I would like to present the analysis of this and horizontal antennas at a later stage.)

Points to Remember

1. Short radiators have a low base resistance and a relatively low radiation resistance and consequently you can expect lower efficiency. However, short radiators can still be quite efficient; the shorter radiators require shorter groundplanes and are more optimum at lower groundplane displacements — don't write-off a short radiator! Do take into account the lower feedpoint resistance and consequential difficulties with feeder and element losses. Some form of ATU at the base is the best. Also note that a short radiator has a very high base impedance, caused by its capacitive reactance, and that the RF voltages at the base are very high!

2. There is an optimal height for an elevated groundplane. That height is not at ground zero, and is typically around 0.05 wavelength. (The statement *"the higher-the-better"* is not always true for such systems.) Do not place your ground system on or in the ground unless you have space, time and materials for about 120 radials, and you are fortunate to have excellent ground, or the desire to hide your ground system. (You may be able to see from Figure 4 that there is a lot to be gained from watering an inadequate ground system — so don't write-off that folk-lore!)

3. The efficiency curves are forgiving and somewhat broad; displacements as little as 0.005 wavelengths can be tolerated; some curves actually peak around 0.01 wavelengths.

4. Large numbers of radials are not required for elevated groundplane systems. Three or four radials are sufficient, doubling the number does not double the efficiency.

5. The elevated groundplane system is more efficient at lower frequencies.

6. A lot can be gained by placing your antenna near swamps, lakes and in close proximity to the sea; you should expect substantial improvement, often more than 3 dB in these cases.

7. Lastly, these results are only as good as the simulation program. However, this program is good at modelling linear antennas close to lossy ground. NEC-81 has been validated numerous times; even so, the model has failed even more times due to inappropriate use.

I have also performed simulations for elevated groundplanes with an underlying secondary ground screen

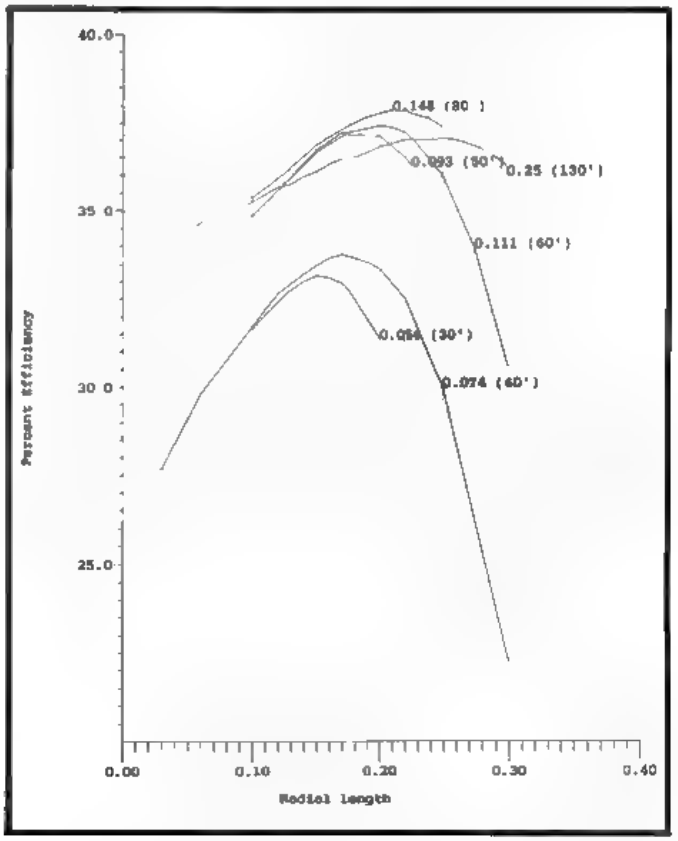


Fig 5 — Fixed displacement at 1.825 MHz 20' (13,5).

Help protect our frequencies — become an Intruder Watcher today

placed on the ground. It is detrimental to connect the elevated groundplane to this form of lower ground system. Note the recommended commercial practice to terminate radial systems with a ground stake — I would highly recommend against such practice. The situation is made even worse if the ground stake is under the feedpoint rather than at the ends of the screen.

I originally thought that this grounding anomaly was an artefact of NEC-81, but I have subsequently read the preliminary publication *"Recent Advances to NEC: Applications and Validation"* by G J Burke, which investigated these effects and others; he used the new improved and classified NEC-3 (which he developed) to model situations for several typical broadcast antennas and antennas below the ground. He found, to my surprise, and others, that the recommended grounding practices are detrimental. By this stage of writing, G J Burke should have released these findings for publication, so you may be able to find references to this material. His findings were based on the relative communication efficiency (RCE) of the antenna measured in terms of field strength at some distance outside the near field, a more appropriate value, rather than the efficiency figure I employed.

Bibliography

The MINI-NEC and NEC programs are based on the Method-of-Moments (MoM); you can find a description of this method in *"Antennas, Second Edition"*, by John D Kraus, McGraw Hill 1988.

Another book, said to be the foundation of the technique, is *"Field Computation by Moment Methods"*, by R F Harrington, McGraw Hill 1961 (I have never seen a copy).

The hybrid vertical-horizontal marine dipole, developed by VK3AM, is described in *"HF Antennas for All Locations"*, by L A Moxon G6XN, on page 154.

The *"ARRL Antenna Compendium"*, Volumes One and Two, are also interesting reading for antenna construction and modelling.

The book review *"Computational Electromagnetics: Frequency Domain Method of Moments"* by Edmund K Miller, Louis Medgyesi-Mitschang, and Edward H Newman was extracted and reprinted in an ACES newsletter. The extract stated that the review contains 528 pages and recommends several books; one book of recent publication is *"Generalised Moment Methods in Electromagnetics"*, by J H Wang, John Wiley and Sons, NY, 1991. I believe this would be for the serious MoM enthusiast (I have never seen this either).

'8 Hardy Place, Kambah, 2902

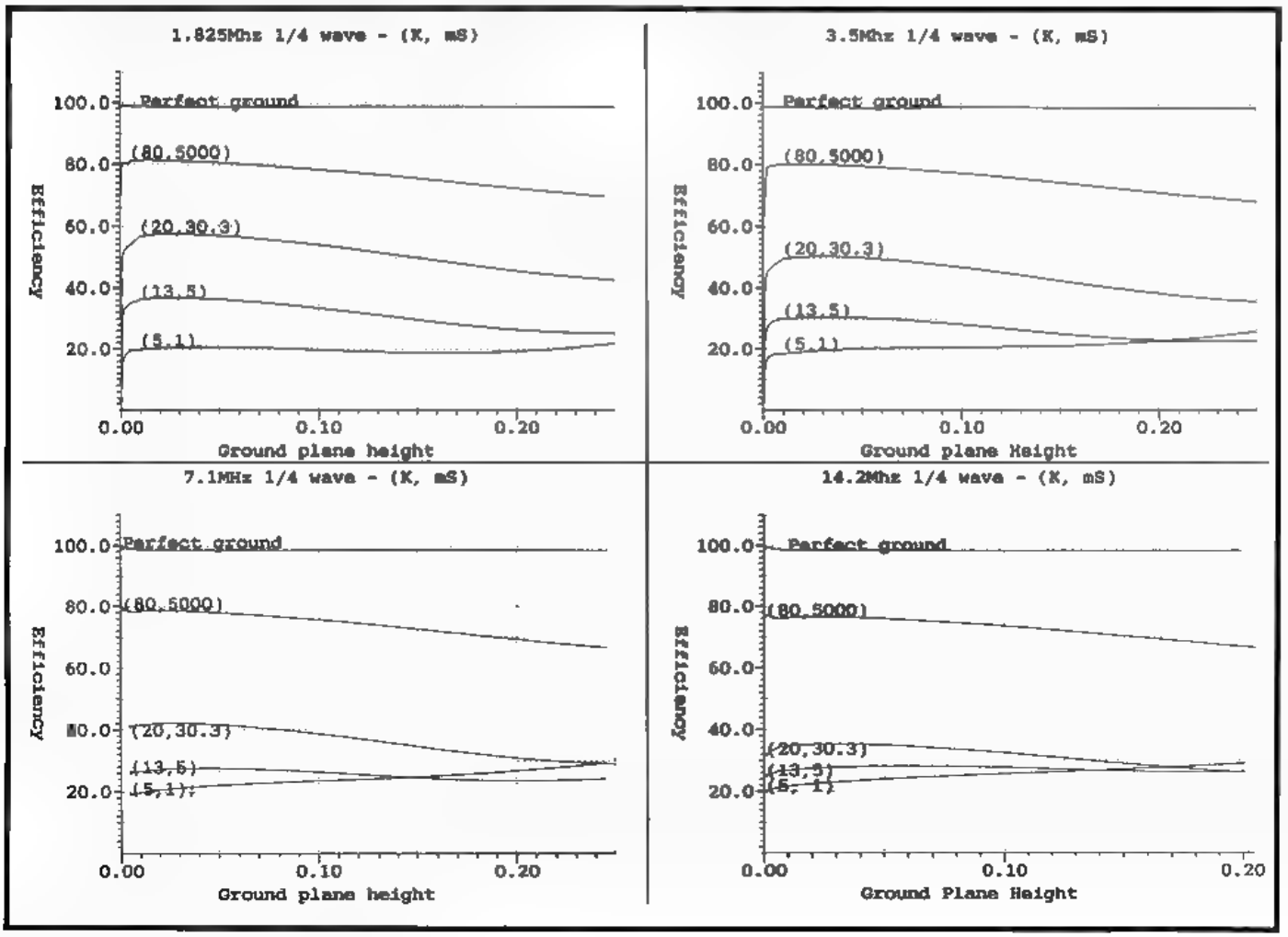


Fig 6 — The effects of changing frequency.

Technical Abstracts

*Gil Sones VK3AUI**

New Version of Helical Beam Antenna

Dr John D Kraus W8JK devised the helical beam antenna over 50 years ago. In its original form the antenna consisted of a spiral element with a screen reflector. Now Dr Kraus has provided a new variation of this classic aerial. In an article in *IEEE Antennas and Propagation*, April 1995 and reported in *Technical Topics* by Pat Hawker G3VA in *Radio Communications*, August 1995, the new antenna, which uses circular loops to replace the ground plane screen, is described. This construction offers lower wind resistance with similar performance.

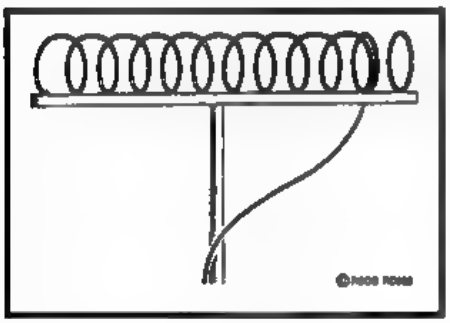


Figure 1 — Ten turn helical using loop ground plane equivalent.

The description of the antenna shown in Fig 1 is as follows. *The inner conductor of the coaxial line feeding the antenna is connected to the end of the helix, and the outer conductor to the base of an adjacent loop. A second (buffer) loop may be situated 1/3 to 1/2 wavelength from the feedpoint. This loop may or may not be continuous. A third loop, one wavelength or less from the feedpoint, is optional. The helix and all loops are approximately one wavelength in circumference at the centre frequency of operation. A typical pattern is shown in Fig 2.*

The helix has a turn spacing of 0.27 wavelength and the gain is stated to be 15 dBi for a 10 turn design. The

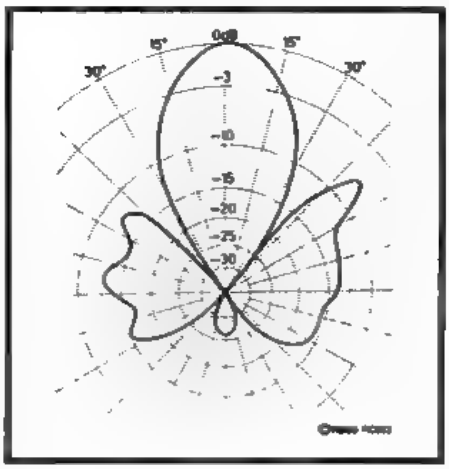


Figure 2 — Radiation pattern of helical with loop ground plane.

gain is referenced to an isotropic source and the polarisation is circular. The linear polarisation gain relative to a half wave dipole is somewhat less. The gain is worthwhile for a simple and wideband antenna. The beamwidth is 34 degrees at the half power points as shown in Fig 2.

To duplicate the antenna it would be wise to obtain copies both of *Radio Communication* and the original IEEE magazine article. Some experimental work would be required to produce a working antenna.

Stealth Antenna Tuning Indicator

Tuning an antenna tuning unit (ATU) can cause a lot of trouble due to the radiated signal interfering with contacts already in progress. Reducing power to a level which minimises the interference often leaves the normal SWR meter with not enough RF to give a reading. An old technique which has been around for 45 years or more helps overcome this problem.

The technique has lead to an article in *QST*, June 1995, by James "Jay" Craswell WB0VNE/AAV5TH. The article is titled **Build the Stealth Tuning Indicator.** The stealth tuning indicator uses a dummy load to provide the transmitter with a load for up to full power. A small amount of the RF present across the dummy load is coupled via a resistor to a resistive bridge circuit. A diode detector and meter provide an indication of balance. The antenna, via the antenna tuner, is connected as the unknown leg of the resistive bridge. At match the load presented to the bridge is 50 ohms and the bridge is balanced.

The circuit of this simple device is shown in Fig 3. The circuit can be

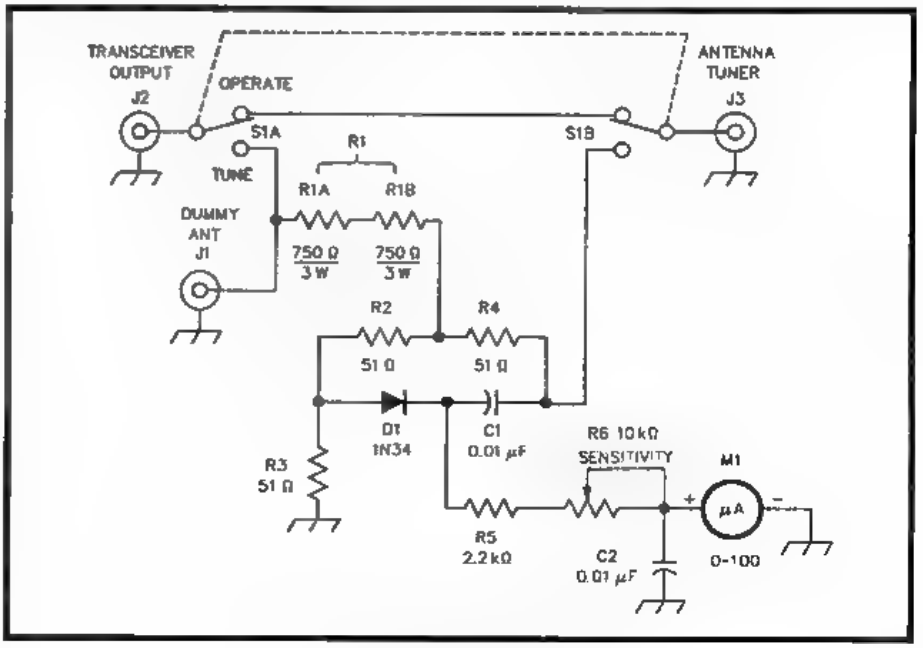


Figure 3 — Stealth antenna tuning indicator.

built into a small metal utility box. The switch can be a simple DPDT toggle switch A full size one rated for AC mains use would be suitable. Resistor R1 is relatively non critical and a suitable combination of metal film power resistors would be suitable. An alternative for R1 would be a combination of some of the old 2 W carbon types often found at hamfests. The 51 ohm resistors should be metal film but, if these are hard to find, use some parallel 100 or 150 ohm carbon resistors Two 100 ohm resistors in parallel give 50 ohms as do three 150 ohm resistors. The diode is a germanium type but a silicon one will work. A germanium diode is preferred due to the lower voltage needed for conduction.

The dummy load can be any of the homebrew or commercial units. If you need one then I am sure Daycom Communications Pty Ltd could help either with parts or an MFJ unit.

This simple design using only a handful of parts will allow you to adjust your antenna tuner to a match whilst causing a minimum of disturbance. The power radiated is very considerably reduced during tune-up and the match obtained will be very close to that obtained using full power through an SWR bridge. As an added bonus you will lessen the chance of destroying the finals in your transmitter as they do not have to handle the high SWR in the off-tune condition.

*C/o PO Box 2175, Caulfield Junction VIC 3161

WIA News

Amateurs' Role in Emergency Communications Recognised by UN

The United Nations has given formal recognition of the role and value amateur radio can have in emergency communications.

In late July, a meeting of the Working Group on Emergency Telecommunications (WGET) of the UN Department of Humanitarian Affairs, drafted recommendations for overcoming barriers to improving disaster communications on national and international levels, as part of developing an "International Convention on Emergency Telecommunications".

According to a report in the 15 August 1995 publication of *The ARRL Letter,* the WGET proposed that one of the ways to overcome such barriers is to . . . *encourage the development of the amateur radio services and their application to disaster communications.*

The July WGET meeting was attended by American Radio Relay League (ARRL) Field Services Manager Rick Palm K1CE. The group agreed on a draft that would *encourage the development of decentralised means of telecommunications such as, but not limited to, mobile and portable satellite terminals and the amateur radio service(s) and their application to disaster communications.*

The WGET's work arose from a 1991 UN study that found an urgent need to . . . *improve international cooperation in communications and enhance national communications capabilities.*

The Amateur Service received strong support from the UN Department of Humanitarian Affairs (UNHDA) spokesman, Hans Zimmerman, at the World Telecommunications Development Conference in March 1994, *The ARRL Letter* reported, which has led to further cooperation between amateurs and the UNHDA.

Meanwhile, the International Amateur Radio Union (IARU) now has 146 member societies with the recent admission to membership of the amateur radio societies of former USSR states, Burkina Faso and Turkmenistan.

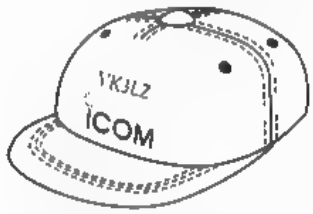
ICOM Count on us!

"VK3LZ calling!"

More sound information from your friends at Icom

The Much Awaited IC-706 is Here!

This eagerly awaited unit has now arrived Demand is such that orders placed recently will take around 1-2 months to fulfil, unless your local dealer ordered extra stock. Don't forget the first one hundred to return their warranty cards will receive an Icom cap with their call sign on it.



23cm Expansion in the Sunshine State.

A 23cm repeater is currently being installed in Brisbane with mother to follow shortly This follows the two being installed in Melbourne Watch the dealers' ads for the handhelds available at special prices to access these repeaters

"...73"

Call me at Icom on
free call 1800 338 915
ph: (03) 9529 7582
fax: (03) 9529 8485

ACN 006 092 575

Antennas

Spiral Top-Loading of a Short Vertical

Ralph Holland VK1BRH describes an effective method to resonate a shortened antenna.*

Introduction

Top-hat capacitance and inductive base-loading and centre-loading have traditionally been employed to bring short antennas to resonance. These methods are covered in detail in references 1 and 1A. However, this article describes how the self-capacitance and inductance of a spiral coil can be employed as a top-loading element for a short vertical, with the obvious extension to end-loading of dipoles.

Construction

A spiral coil was constructed on a form composed of 69 mm OD plastic drain-pipe and 15 plastic radials. The plastic radials are 7.9 mm OD tubes used as uprights for small sprays. They are cheap and readily available from garden supply shops. One end of the upright is terminated with a screw thread, which can be tapped into the 69 mm OD drain-pipe if suitable undersized holes are drilled (evenly) around the circumference of the drain-pipe.

The coil was wound with 0.6 mm enamelled copper wire from the junk-box. The wire was alternated over the radials in a basket-weave fashion (there must be an odd number of spokes to perform a basket weave). This resulted in a very neat and high Q coil. It should also be possible to stabilise the coil and remove the radial supports for even higher Qs.

The drain-pipe former was centred at the top of the 1.5 m vertical via a wooden insert. The inner-end of the spiral coil was clamped to the top of the radiator. The 1.5 m vertical had a 1 m square ground mat and was connected to an elevated ground system to stabilise measurements.

The computer simulations were performed for unloaded 1.5 m and 10 m monopoles with four 0.2 wavelength radials (at the various simulation frequencies) elevated three metres above the typical clay ground with a relative dielectric constant of 15 and conductivity of 5 milli-Siemens (15 K, 5 mS) (Ref 5). The results were extrapolated to loaded antennas.

Results

Starting from an initial one hundred turns on the top loading coil, the resonant frequency was determined with a grid-dip meter coupled into a half-turn loop connected between the radiator and the ground mat. The dip frequency was read from the dial of a digital communications receiver and recorded. One turn was removed from the top loading coil and the process was repeated.

Figure 1 shows how the spiral loading reduces the natural resonant frequency of the vertical.

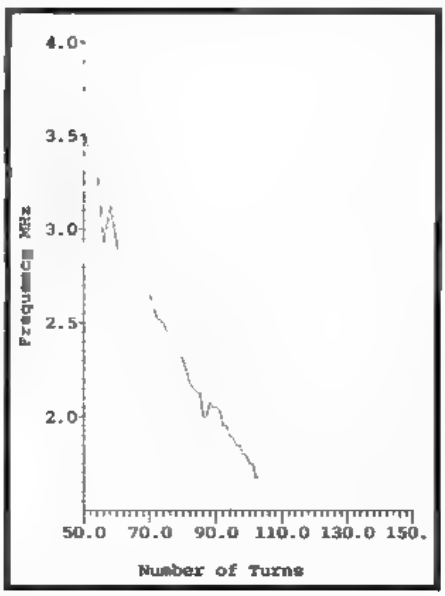


Fig 1 — Top loaded 1.5 m vertical.

Figure 2 compares a 1.5 m spiral-top-loaded antenna against an unloaded antenna over ideal ground. The losses are due to the RF resistance of the coil. The loss resistance of the coil and antenna was calculated as 29.8 ohms at 1.68 MHz, decreasing to 19.6 ohms at 3.5 MHz.

Figure 3 compares the same antenna over typical clay soil (15 K, 5 mS). The calculated total loss ranged from 24.7 dB at 1.68 MHz to 17 dB at 3.5 MHz (4.1-2.8 S-points loss).

Figure 4 shows the vastly improved situation (1.5-0.6 S-points loss) when the radiator is lengthened to 10 m.

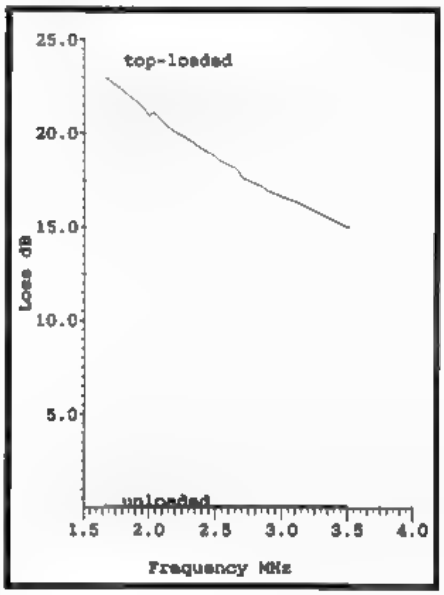


Fig 2 — 1.5 m vertical, ideal ground.

Assumptions

Figure 2 was derived from the following:

1. Radiation resistance. The current amplitude for the radiator was assumed to be almost uniform over the entire vertical section due to the top loading. The radiation resistance was calculated from the approximation: Rr = 80 * pi ** 2 * (Iav/Io) ** 2 * 2h ** 2 attributed to Kraus equation 5-3-14 (Ref 3) (2h is the length of a short dipole in wavelengths). Other sources quote Rr = 490 * h ** 2 for a short monopole (Refs 1, 1A and 2). The Kraus equation yields:

a. Rr = 15791 * h * h — for uniform current (h in wavelengths)

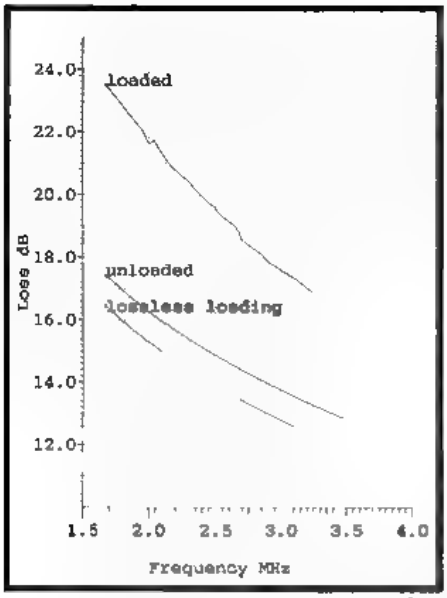


Fig 3 — 1.5 m vertical, clay ground.

b. Rr = 789.6 * h * h — for sinusoidal current

c. Rr = 394.8 * h * h — for triangular current.

2. The coil current was assumed to be near sinusoidal. The coil RF resistance was calculated from the RF resistance of round copper wire (Ref 4) multiplied by the length of the wire in the spiral-loading coil. The assumed sinusoidal current taper requires this value to be divided by two as the average value of the current distribution is equal to the peak current divided by the square root of two. No allowance was made for current-bunching caused by proximity of turns.

3. The coil was assumed to lose power through heating of this RF resistance. The coil does not radiate as the radiation resistance of the coil is negligible. For a loop less than 1/3 wavelength in circumference: Rr = 31200 * (A/lambda ** 2) ** 2; where A is the area, and lambda is the wavelength of operation (Kraus equation 6-8-10 — Ref 5).

Figure 3 was derived from Figure 2 calculations and the additional ground losses were derived from computer simulations of elevated ground planes (Ref 6).

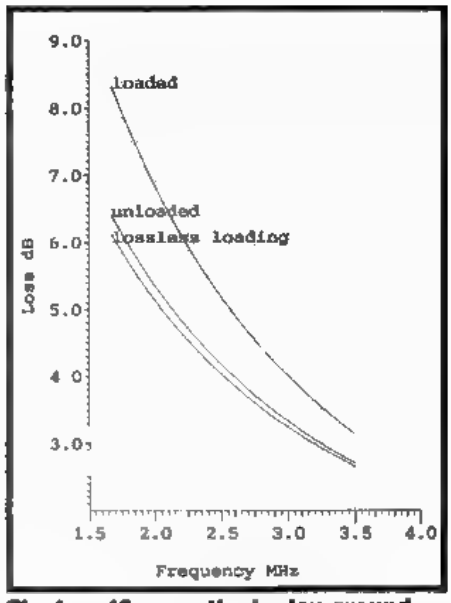


Fig 4 — 10 m vertical, clay ground.

Figure 4 is based on 0.18 lambda of spiral coil and radiator (the shortening factor observed in the 1.5 m antenna) with ground losses simulated for ground parameters (13 K, 5 mS).

Radio and
Communications
incorporating radio and CBAction

RADIO and COMMUNICATIONS has loads of material of specific interest to amateur radio operators.

After all, Amateur Radio Action was around for almost 20 years, and R&C *is* the former ARA - combined with CBA as a bonus!

This month's big feature review is one everyone has been waiting for;

*** The Alinco DX 70 HF + 6m mobile - very small and very good.**

plus

***The MFJ-1278 DSP - yet another revamp of this well known TNC - and DSP makes it even better.**

*** Construct a power supply - a simple DIY project for a useful little shack supply.**

But a good, well-balanced radio mag is much more than just reviews!
The former editor of *Ham Radio Today* continues his series on antenna theory and construction articles, this month discussing *Marconi verticals* which really work. Tom Sundstrom joins the party with an Internet primer written in simple English that even the editor understands!
There's also seven pages of DX news and updates...and lots more.

...and you won't know just how much interesting communication-type reading can be packed into a huge 100 pages if you don't buy a copy.

Check your local newsagent today!

Conclusion

The spiral basket-weave coil is certainly a compact way of top-loading or end-loading a radiating element. The overall efficiency will be improved, in expected order of effectiveness by:

1. a longer radiator;
2. larger diameter wire for the spiral coil;
3. a larger initial starting diameter for the spiral coil,
4. larger diameter conductor for the radiator; and
5. a more substantial ground system.

Low ground losses were achieved with an elevated ground-plane, see Ref 6.

Note the significance of starting with a reasonable length radiator and a lower loss coil.

References

1. Optimum Design of Short Coil-Loaded High Frequency Mobile Antennas, Bruce F Brown, The ARRL Antenna Compendium Volume 1, page 108. Publisher: ARRL 1985.

1A. The ARRL Antenna Book, 15 Edition, page 16-5. Publisher: ARRL, 1988.

2. The ARRL Antenna Book, 15 Edition, Radiation resistance, page 2-34. Publisher: ARRL, 1988.

3. Antennas, John D Kraus. Second Edition, page 217. Publisher: McGraw-Hill 1988.

4. Fields and Waves in Communication Electronics, Simon Ramo, John R Whinnery and Theodore Van Duzer. Publisher: John Wiley and Sons. First Edition 1965, page 295; Third Edition 1983, page 180.

5. Antennas, John D Kraus. Second Edition, page 251. Publisher: McGraw-Hill 1988.

6. Short Vertical Antennas and Ground Systems, Ralph Holland, *Amateur Radio*, October 95.

**8 Hardy Place, Kambah ACT 2902*

ar

■ Poetry

SAFN Trip 1991

A poem by Jane Finch, a Londoner.

The following poem was sent in by Ronald Jones VK2VND (QTHR). It was written by Jane Finch, of London England, who participated in a round-Australia trip with VK2VND and ten others and was moved to describe it in verse.

"Why don't you come over? The space can be found",
"We're seeing Australia, all the way round,"
"We're taking six caravans." I went along.
Eleven tough Aussies and one timid Pom.

"We'll show you our country", they told me with pride.
"We'll tell you its history about men who had died,
In trying to conquer these harsh barren plains,
With dreams for the future and prayers for the rains."

We followed their tracks, but without pain or grief.
On our bitumen road, in shaded relief,
From the sun which tormented each sparse tree in view.
Wall to wall scrub, under wall to wall blue.

Leaving the road we took plane and boat,
For gorges and caverns and caves far remote.
We battled with dust, reaching parts you'd not think,
From Kimberley red, to Pilbara pink.

And, oh what a joy when we reached the West coast,
To the beauty of Broome, I drink a quiet toast.
Then south with the ocean in view on our right,
Turquoise blue sea beyond sands of pure white.

There were tall trees, and small trees, and no trees at all,
On the Nullarbor Plains, where temperatures fall,
From fifty to ten in the space of a night,
As we travelled along the Australian Bight.

I'm trying to write of the sights which we saw.
Of the gold towns and ghost towns and crocs by the score.
A trip of a lifetime, remembered for long,
By eleven tough Aussies, and a toughened-up Pom.

ar

WIA News

World Record for 2 m Band Contact

A new over-water distance record of 4333 km for the 144 MHz band has been claimed by two United States amateurs for a contact between Hawaii and Washington state.

The contact occurred on 1 July 1995, The *ARRL Letter* of 15 August reports. It was between Paul Lieb KH6HME on Mauna Loa volcano in Hawaii, and Jim Costello W7FI in Woodinville, near Seattle in Washington state. The previous record, of 4276 km, was set in July 1989 by a contact between KH6HME and XE2GXQ, on Baja California.

■ History

Post War Television

Karl Saville VK5AHK reminisces about his part in post World War II television*

As World War 2 came to an end in 1945, so did the contracts for making guns, tanks, planes and other war material. The companies which had benefited from these contracts had to look elsewhere to keep their machines and workers employed and, out there in the towns and cities, was a large domestic market just waiting to buy all those things that had been in short supply during the six years of war.

This story is about post war television and the very small part I had to play in it. There had been a regular television service in England since 1936 but, when the war broke out in 1939, the director of the television station at Alexandra Palace, near London, received a telephone call from the government telling him to shut down the station. The director immediately pulled the main power switch and cut the station off the air right in the middle of a program without any announcement.

The television system used at the time was based on a 405 line and 25 frame format which had been developed by EMI Co Ltd. There had been a lot of experimentation with television world wide in the prewar period and the French had a television station on the top of the Eiffel Tower. When France surrendered and the Germans entered Paris they carried on with the TV transmissions, not realising that the pictures might be picked up in London. The electronic intelligence service in England decided to use the transmitting antenna at Alexandra Palace as a receiving antenna and they were able to monitor the Eiffel Tower transmissions throughout the war and some useful information was picked up.

I joined EMI in January 1946 at their main factory at Haynes, Middlesex in England. It was about 20 miles from Slough, the town where I was living at the time. EMI Co Ltd was the holding company of a group of companies that had been involved in radio, television, gramophone and recording before the war. These included His Master's Voice (HMV), Parlophone Records, Columbia Records, Regal Gramophone, Marconi and possibly others.

Early in 1946 it was announced that regular television programs would be recommenced by June of that year and two hour test programs each morning and afternoon would be transmitted immediately. In the meantime EMI had arranged with their prewar television set owners that, if the 12 months guarantee on their television sets had not expired when the war started, they would take the sets back into the workshops and overhaul them under the guarantee so that they would be serviceable when the regular TV programs started again.

I was, with nine other engineers, given the job of refurbishing these prewar TV sets. I found it very interesting because I had just left the army and had very little experience of television. I thought this would be a new and valuable experience for me.

EMI had leased a large workshop nearby, above a well known chocolate factory. Unfortunately, because of six years of war, the conditions at the chocolate factory had deteriorated and were very much below the standard one would accept today. And, because we had to go through the various chocolate preparation rooms to get to our workshop, we were able to see more than we should. We all vowed that we would not buy this company's chocolate. However, as we continually bathed in the sweet aromatic smell of chocolate throughout the day while we were working, this proved compensation enough for us.

There were many different types of the company's sets returned for refurbishing and these ranged from small table TV sets with six inch tubes, combined receiver and TVs, cabinet TVs with 12 inch or more tubes, up to large back projection sets with screens of about 24 inches.

It is interesting to mention that the bandwidth of the 405 line system used at the time was about 2 MHz and the BBC were able to use the standard telephone lines for some of their outside broadcasts. I have no further information about this but I suspect that they would have needed some frequency compensation. I do remember that outside broadcasts of sports meetings were acceptable at the time, although they could not compare with today's OBs.

There was an amusing incident one day at the workshop. I was busy adjusting a set with the Alexandra Palace test pattern when suddenly a big hairy hand appeared on the TV screen and placed a full frontal photograph of a very attractive young woman in front of the test pattern. The initial annoyance at being deprived of the test pattern was soon overcome and I quickly applied myself to getting the best resolution from my set with the new test card. It was certainly a change from the normal card and it quickly received overwhelming approval from the rest of the engineers. However, I do not think that the director at Alexandra Palace shared our approval because its exposure was short lived. Someone, maybe the director, pulled the big power switch and the station went off the air, possibly the same switch that closed the station down when the war started! Some minutes later the old test pattern re-appeared.

We found that the best and quickest way to refurbish these prewar TV sets was to replace all the electrolytic capacitors, EHT transformers, picture tubes, and certain valves. We had to remove various other items such as dehydrated mice, beetles (some alive), flies, cigarette ends, etc. Some of the sets appeared to have suffered more than six war years use and some looked as they had taken part in the war, but we were able to get them back into an acceptable condition.

The prewar TV sets put out by the

EMI group did not use flyback EHT but used EHT transformers instead. Most of these were unserviceable now and we found it was better to replace them.

We managed to complete a large number of TV sets before the regular TV transmissions started and six of us were chosen to install the sets in the customers' homes. The rest of the engineers were left at the chocolate factory, refurbishing. We were not chosen because we were any better than those left behind, but because we each had a motor car, and a car was essential for the next stage of our work.

When I joined the company in January 1946, I placed an order for a new Morris motor car and was told that there was a two year wait before delivery. Just before the TV sets were ready to go out to the customers, I was told that there was a nice new Morris saloon waiting for me to pick up at the motor dealer. I came across a receipt for this car recently and it was for 365 pounds. Immediately I took possession of the car I was offered 600 pounds for it. It was tempting, as this was nearly 100 times my weekly salary. It was a complete mystery to me how I came to get delivery of the Morris car in so short a time.

Fortune seemed to smile on me at this time. Petrol was rationed in England after the war for several years, but because I lived out at Slough, about 20 miles west of Hayes, I was classed as living in the country. The other engineers mostly lived in the Metropolitan area around London. Country people were allowed a larger ration of petrol coupons than city folk and I was able to take on the long country run jobs.

Britain was one of the first countries to have a regular television service before the war, and even the United States of America did not have a public service until 1941. Generally speaking, only the well-to-do or rich people could afford a television set and these were the people who were having their television sets refurbished and installed free of charge.

Before we went out to a customer's home, a rigger team went along to check out the antenna system and to deliver the TV. Then an engineer would arrive and check that everything worked.

On one occasion I was sent to an address at White Waltham and when I arrived I found it to be a large country estate with a mansion almost as big as Buckingham Palace. I climbed the steps to the huge front entrance and pulled on a handle attached to a long wire and in the distance I could hear a bell ring. After a few moments the door opened and a well turned-out person stood in the doorway. He was possibly the butler and he asked me what I wanted. I told him I had come to install the TV set and he said, "I will fetch Mary the housekeeper". After a few minutes Mary came to the door and she took me through the house to where the television had to be set up. On the way we passed through several rooms where there were some very pretty girls hard at work. They appeared to be counting diamonds. The owner was, in fact, a well known South African diamond dealer. I set up the TV set and was offered tea and biscuits. When I had finished Mary let me out and, as I was leaving, she said, "This is for you". Whereupon she put a pound note in my hand.

That was just how it was in those days. One pound seemed to be the going rate as a tip for installing these sets at the various houses in the country. It was a wonderful time. I could easily double my salary with tips and I was getting a good travelling allowance, and meals allowance. It was a great time for a while, but it was not to last.

On another occasion I had to go along to one of the EMI directors' home to install his TV set. When I arrived he was out, but his wife showed me where the set was. It was one of the large, heavy cabinet TV sets and it was between a sideboard and a large cabinet speaker. Possibly they were taking advantage of the high quality sound that the TV provided. I looked around for the TV mains lead and it appeared to be squeezed between the TV cabinet and the speaker. I retrieved the power lead and plugged it into the 240 volt power socket close by. There was a very loud bang. It sounded like I had been shot. What I had thought was a mains lead was the lead to the loudspeaker and the 12 inch cone was now hanging out of the front of the chassis accompanied by a nasty burning smell. The director was a bit of an amateur electronics buff and he was using a standard 240 volt power plug and lead to connect his speaker to the television. There was an investigation over this, but I remember that the general comments were in my favour.

On another occasion I was sent down to a country house and the lady there seemed to be happy with what I had done and she asked a neighbour over to see me. It appeared that this neighbour wanted to buy a television set and wanted my advice. Being a good company employee I told the lady when she was in London to go into our His Master's Voice shop in Oxford Street and they would be able to show her the latest in television sets.

Later I was called into our office and told that the Head Office wanted to see me. I wondered what it might be about and thought that perhaps there was a commission awaiting me for selling a TV set. Was I surprised? When I arrived at Head Office they began to tear a wide strip off me for trying to sell TV sets. "In the future just stick to your job and leave the selling of television sets and any other EMI products to the salesmen who are specially trained and experienced in this work." There was another side to this episode and I learned later that what I had done was to take a sale away from the local dealer in the town where the lady in question was living, and he had complained that an EMI engineer had advised the lady to go up to London to buy her TV set.

Life was very sweet for a few months going down to these country estates and setting up their TV sets, but soon we began to receive reports that the refurbished TV sets had stopped working. At first not much notice was taken of these reports as one can expect a few problems, but too many reports of failure began to come in. The replacement EHT transformers and picture tubes appeared to have a life span of about four weeks. Where the customers had welcomed us with open arms when

Continued on Page 50

ALARA

Sally Grattidge VK4SHE, ALARA Publicity Officer*

ALARA Contest, Saturday, 11 November 1995

The rules for this contest appear in the *Contests* column elsewhere in this issue of *Amateur Radio*. Do make the effort to join in this friendly contest. Chat with your regular contacts, and catch up with those you have not heard for a while. This is a great opportunity for non-member YLs to meet the ALARA girls. This is not just a "swap numbers" contest, so feel free to ask for information.

CW Operators — don't forget the Florence McKenzie Trophy. Novices — give it a go, and others please listen for them and reply, nice and slowly!

ALARAMeet 1996 Update

The ALARAMeet 1996 will take place in Perth on 28 and 29 September 1996. Bev VK6DE needs to have some idea of numbers attending before the end of 1995, so, if you are going, please let her know as soon as you can. When it comes to packing for the trip, please include a sample of any craft work you do, and a baby photograph of yourself!

Members will be travelling from far and wide. Elizabeth VE7YL plans to be there "with bells on", and there are rumours of a ZL invasion.

VK3 Birthday Lunch

The VK3 girls celebrated on 14 July with (left to right) Margaret VK3DML (not visible), Mary VK3FMC, Margaret VK3CWA, Jean Shaw, Jessie VK3VAN, Mavis VK3KS, Gwen VK3DYL (standing), Robyn VK3ENX (hidden), Bron VK3DYF, Muriel May, Raedie, and Marion VK3FMR. Mavis VK3KS provided a birthday cake, and a good time was had by all.

VK5 Birthday Lunch

The VK5 birthday lunch was attended by (left to right — standing) Jean VK5TSX, Mary VK5AMD, Meg VK5AOV, Myrna VK5YW, Debbie VK5ZDM, Tina Clogg, Denise VK5YL, Yvonne VK5AYK, Jenny VK5ANW, (seated) Christine VK5CTY, Janet VK5NEI and Beryl Bennet. Joy VK5YJ came too late to get in the photograph.

Second Operator

Also at the VK5 birthday lunch was VK5GAL, a doll made by Meg VK5AOV, complete with head phones, microphone and log book. Meg did a bit of PR by showing the doll to other diners and talking about Amateur Radio.

Old Photographs — YLs in Uniform

Bron Brown VK3DYF heard from Dorothy Archbold (nee Fletcher) who saw the photographs published in the May 1995 issue of *Amateur Radio* and was reminded of her involvement in the Womens Air Training Corps in Sydney during the second World War.

Dorothy was a member of the Australian Womens Flying Club, which became affiliated with the Womens Air Training Corps. She became a Squadron Commander of the Signalling Squadron in the WATC. She recognised the uniform, but could not recognise any of the girls pictured.

Part of the duties of members of the WATC was working voluntarily with the Air Training Corps, visiting squadrons of the ATC formed at schools and the headquarters of the WATC during the day. At night they instructed 17 year old girls and boys in Morse Code. Successful students were enlisted in the WAAAF and RAAF as Wireless Telegraphists.

The members of WATC also worked shifts with the WAAAF as members of the Voluntary Air Observers Corps. They worked at the "Tunnel", which was an uncompleted section of the underground railway near the Mitchell Library in Sydney. A plotting table was set up to

monitor movement of aircraft flying along the coastline.

As part of her involvement in the WATC Dorothy also sold "buttons" at Kings Cross and Martin Place to raise money for the Australian Comforts Fund which provided items of "comfort" to servicemen

The photographs also stirred memories for a VK7 OM who was stationed at Tocumwal prior to discharge at the end of the war He recalls some of the girls in the picture running a canteen which he thinks was called The Cupper Place.

It is interesting to learn of those who, for various reasons, were not able to join the Forces, but gave their time to assist in various ways on the home front. This year, as we remember back over fifty years, we can appreciate greatly the time given so freely by these volunteers.

District Radio Ladies (Rockhampton)

The DRLs are planning a Christmas party on 9 December. This energetic group has outings and activities, runs raffles and bring-a-plate get-togethers to raise funds, have their own distinctive T shirts, and are now designing a badge. Just goes to show what can be done with a bit of effort. Robyn VK4RL runs the DRL net on the first Thursday of the month on 146.900 MHz at 1000 UTC and 3.565 MHz at 1030 UTC.

Get Well Soon

Judy VK3AGC recently dislocated her hip, just bending down to pick up an empty grain sack! She was alone at the time, but they breed 'em tough in the bush, and by using a short ladder and a rake for crutches she was able to reach her parent's house and call for help. If you see Judy sinking gracefully to her knees, she is not making a curtsy, just picking something up from the floor, very carefully.

Music Maker

Denise VK5YL plays with a bush band, but she does a bit more than rattle a lagerphone. She has been writing some music for the band, in two parts to make it "less boring".

Vintage Wheels

Mary VK3FMC visits many interesting place with her Vintage Car Club and Radio Club. She and her OM looked longingly at a 1913 Rolls Royce at a Vintage Car Museum Auction recently, but where would they store it, and how could they afford to keep it in petrol? It does gallons to the mile, not miles to the gallon. They were intrigued, but not tempted by the Fiat Dune Buggy and the vintage fire engine. Mary is not the only YL in Ballarat. She is joined by Marion VK3FMR who is assistant to the minute secretary for the Ballarat Radio Club.

Travellers

Marlene VK3WQ and OM Jim recently surprised Meg VK5AOV with a visit as they made their way home from their travels.

**C/o PO Woodstock, QLD 4816*

Club Corner

Hervey Bay Amateur Radio Club

Ritsie VK4FRZ receiving the HBARC President's Award for 1994/5 at the 19 July 1995 Annual General Meeting. **Gray VK4OH ar**

AWARDS

*John Kelleher VK3DP — Federal Awards Manager**

DXCC Signal Reports

During the first week in September, I was asked a question regarding the required minimum RS or RST to qualify DXCC contacts. I have always been of the opinion that the minimum acceptable RS report was 3 and 3.

However, it was brought to my notice that Rule 4 of the ARRL DXCC rules makes no mention of ANY signal reports. Since I find it necessary to generally follow the ARRL design, I am more than a little confused about the eventual outcome.

Does this rule apply to all followers of ARRL DXCC, or does it apply to US stations and DXCC field checkers appointed by the ARRL? I have, in the interim, sent a fax to the ARRL asking for clarification of this rule, and hope to supply an answer through the ANZA and 222 Nets.(Makes me wonder why I spent so long giving and receiving signal reports from that rare one, only to find that it is of no earthly use to anybody). For the further education of all concerned, I will quote Rule 4.

Confirmation data for two-way communications (ie contacts) must include the call signs of both stations, the country, mode, and date, time, and frequency band.

QSL Situation with Russia

I find it necessary to publish a kind of "retraction" regarding the correspondence and QSL situation in Russia. In a letter from John Allaway G3FKM/VK3FAE, he quotes: *No IARU member society should communicate with Box 88, which has been behaving disgracefully — all communications should now go to SRR (Box 59). SRR was quite correctly voted into IARU membership recently and now represents the Russian Federation. It's a bit of a mess and the Krenkel Central Radio Club (Box 88) recently changed its name to SRR.*

John Allaway is Secretary, IARU Region 1. I thank him for this information, which will be of great assistance to many.

VI5AGP

The NERC (North East Radio Club) will run a special event station for the 1995 Adelaide Grand Prix, and in doing so will provide an award for amateur radio operators, and short wave listeners. The station will be active from 0000 hours on

29 October to 2359 hours on 19 November 1995 using the callsign VI5AGP, and operation will be on HF and VHF

To obtain this award, licensed amateurs must contact an operator who is authorised and rostered to use the above callsign. SWLs need to send details of both sides of a contact between VI5AGP, and another station.

Along with normal QSL information, a fee of $AUS5.00, or three IRCs, will be required, and should be sent to: VI5AGP, North East Radio Club, PO Box 36, Modbury North SA 5092.

The Silver Jubilee Award

The Royal Omani Amateur Radio Society have introduced the above award to commemorate the Sultanates' 25th National Day. From 1 November 1995 to 31 December 1995, all A4 stations (except the special event station A43SJ, which will be QRV in the third week of December 95) will use /25 after their callsign suffix, eg A41XX/25.

The award will be issued to any DX station which qualifies for eight points from the following scale: Special Event Station A43SJ — three points; club stations A47RS/25 and A47OS/25 — two points; and other individual /25 stations — one point. Contact with the same station on a different band or mode will double the points.

Please send your certified log copy with a fee of 10 IRC or $US5.00 to: The Awards Manager, ROARS, PO Box 981, Muscat 113, Sultanate of Oman.

The Patron for this Award is His Majesty Sultan Gaboos Bin Said — A41AA.

Club Awards

I would like to make another appeal to Club stations who still run awards programs. This magazine is a world-wide forum for radio amateurs and I feel that you are missing a grand opportunity to publicise your Club and its Award. Besides, you would be saving me a monstrous postage bill if you were to let me know shortly what you have to offer.

PO Box 2175 Caulfield Junction 3161

Have you advised the SMA of your new address?

AMSAT Australia

*Bill Magnusson VK3JT**

National co-ordinator
Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI
AMSAT Australia net:
Control station VK5AGR
Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):
Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/– QRM.
AMSAT Australia newsletter and software service
The newsletter is published monthly by Graham VK5AGR. Subscription is $30 for Australia, $35 for New Zealand and $40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:
AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Is It Time to Say Goodbye to 2 Metres as an AMSAT Down Link Frequency?

A very interesting article by Antonio F Fernandez EA4LE in a recent issue of the *AMSAT Journal* again asks this topical question. Others, including James Miller G3RUH and Graeme Wilson VK4FXL, have made this point before and their views have received international coverage.

Antonio points out that the increasing QRM and man-made noise on 2 metres is making this band very difficult to use as a down link for amateur radio satellite work. It is already impossible to use 2 metres for weak signal work in many countries. This is exactly the argument put up by the designers of phase 3D when they did not include a mode UV (B) transmitter in the original design. There was such an outcry from established mode B operators that eventually, when a volunteer (Mike G6JEG) was found to construct a 2 metre transmitter, mode UV was scheduled into the transponder matrix.

It remains to be seen whether the fears expressed by Antonio et al are justified. I tend to agree with them in saying that the only way to go is UP. When considering a satellite which is looking to have a life of at least five and maybe ten or more years it would seem the major emphasis should be on UHF and microwave systems. I will certainly miss the old mode B when the time comes but then I've tried mode S, it's great and it's not all that difficult. Down converter and pre-amp kits are available for the adventurous, antennas are a breeze, there is no QRM and the only noise is the gentle background hiss from cosmic noise and the transponder noise floor.

Home Brewer's Corner

I received a letter from Dick VK3ABK updating his activities. He is now active on the digital satellites and making progress towards a fully automated station. Rod VK3AYQ is also a home constructor interested in weather satellites and putting together a computer system and amateur radio satellite station. The idea of this section of the column is to put home brewers in contact with each other, so let's know what you're doing and you may find some kindred spirits out there.

New Equipment for MIR Operations

German Cosmonaut Thomas Reiter DF4TR will be on board the space station MIR signing DP0MIR during the ESA EUROMIR 95 mission starting 3 September 95. He will use the 2 m ham radio rig aboard MIR during the 135 days of his flight The primary frequencies to be used (preferably in SPLIT mode operation) are 145.800 MHz, 145.550 MHz, and maybe 145.200 MHz (as adopted for MIR and SHUTTLE activities at the IARU session of this year's AMSAT-UK Colloquium). The QSL information is DP0MIR, and QSLs will be handled via the usual German DARC QSL bureau.

A new piece of 70 cm equipment, called SAFEX II and built by Thomas Kieselbach DL2MDE (who also arranged DF4TR's activity together with Sergej Samburov RV3DR), will be installed in the MIR spacecraft permanently in the course of future missions. This will be primarily a FM repeater with a downlink at 437.925 MHz, 437.950 MHz, and 437.975 MHz, and an uplink in the lower part of the 435 MHz space segment. SAFEX II will later be improved by adding a 23 cm to 13 cm transponder, capable of broad-bandwidth modes (eg ATV).

SAFEX I Frequencies (during EUROMIR'95 mission)

2 m Band

Voice:	Downlink	145.850 MHz
	Uplink	145.250 MHz
Packet Radio:	Downlink	145.550 MHz
	Uplink	144.625 MHz
		145.550 MHz
Add. Uplinks:		145.200 MHz
		145.225 MHz
		144.675 MHz
		144.725 MHz

70 cm Band

Voice:	Downlink	437.925 MHz
	Uplink	435.725 MHz
Packet Radio:	Downlink	437.775 MHz
	Uplink	435.775 MHz

Additional Uplinks: 435.800 MHz to 436.000 MHz with 25 kHz spacing.
Thomas Reiter DF4TR, Onboard Station Call DP0MIR

OSCAR-13 Status Report

AO-13 Current Transponder Operating Schedule: 31 Jul — 30 Oct 1995

Mode-B	:	MA 0 to MA 140	
Mode-BS	:	MA 140 to MA 240	
Mode-B	:	MA 240 to MA 256	Alon/Alat 225/0
Omnis	:	MA 250 to MA 140	Move to attitude 180/0, Oct 30

[G3RUH/DB2OS/VK5AGR]

It's Algonquin Time Again

Roll out your best OSCAR satellite gear and try for an EME contact. The Toronto VHF Society plans to use the 46 metre (150') dish at the Algonquin Radio Observatory (courtesy of the Institute for Space and Terrestrial Science, York University) during the weekends of the 1995 ARRL International EME Competition. They will operate both weekends of the contest and hope to activate the 50, 144, 432, and 1296 MHz bands.

Band	Date (UTC)	Time (UTC)	VE3ONT Tx Frequency	VE3ONT Rx Freq window
144 MHz	Oct 6/7	0000-0910	144.100	144.100-144.110
50 &	Oct 7/8	2305-1020	50.100	50.100-50.105
1296 MHz			1296.050	1296.050-1296.060
432 MHz	Nov 3/4	0000-0805	432 050	432.050-432.060
144 MHz	Nov 4/5	2135-0910	144.100	144.100-144.110
144 MHz	Nov 5	2205-2400	144.100	144.100-144.110

QSL to. Dennis Mungham VE3ASO, RR #3, Mountain, Ontario, Canada, K0E 1S0. Moon rise is in the wee small hours in eastern VK giving a couple of hours operation before moon set at Algonquin. Unfortunately, there will not be much chance of a contact from VK6.

G3YJO Honoured

Prof Martin Sweeting G3YJO of Surrey University Centre for Satellite Engineering Research has been awarded an OBE for his work in setting up this centre. Martin has been the moving force behind the UoSats Starting with UoSAT-1 (OSCAR 9) he established a new department, acquired a Doctorate in Space Sciences, a Professorship and now the OBE Martin's role in promoting the standing of amateur radio and AMSAT in the scientific community can not be over emphasised Thank you and congratulations, Martin

359 Williamstown Rd, Yarraville VIC 3013
Packet: VK3JT@VK3BBS.#MEL.VIC.AUS.OC
CompuServe: 100352,3085

Help stamp out stolen equipment — always include the serial number of your equipment in your Hamad.

WIA News

SMA Provides Answers to Questions

At the 18 May meeting between the WIA and the Spectrum Management Agency (SMA) in Canberra, Federal President Neil Penfold VK6NE tendered a series of six questions to the SMA and asked if the Institute could be provided written answers for publication.

The questions were drafted by Don Graham VK6HK, and the WIA felt that they embodied widespread concerns expressed among the amateur radio community. Here are the six questions and the answers the SMA provided to the Institute in July.

Question (1) *A confirmation of the SMA's policy on the treatment of repeaters and beacons including the licensing fee arrangements?*

Further to the advice received by Mr Graham from Mr Martin Chape of the Perth SMA Area office, the SMA has no intention of charging $91.00 per hour for a physical inspection of repeater or beacon equipment. The routine operational inspection of sites is a cost that is incorporated into the Spectrum Maintenance Component of the Licence fee and therefore will not attract additional individual charges

Amateur Radio repeater stations and beacons are considered assigned services. They are required to have frequency coordination work carried out by the SMA to ensure they are able to operate compatibly with all other radiocommunications services, including those not in amateur bands.

The initial issue fee for repeaters and beacons is charged at an hourly rate of $91 (minimum fee $45.50 for half an hour). Once licensed the annual re-issue fee will be the minimum licence fee of $24. For most such licences, the bandwidth would be between 0 kHz and 36 kHz and they will therefore attract the minimum

spectrum access tax and the minimum spectrum maintenance charge, amounting to around $13. The administration charge for such a licence would be around $11 giving the total annual reissue fee of $24. The renewal fee applies to amateur television repeaters as well as to narrow band repeaters and beacons.

Question (2) *Is the licence fee for repeaters and beacons charged per site or per licence?*

The minimum fee will apply per transmitter (frequency or pair of frequencies), but any associated links are covered by that one transmitter licence. This licensing system differs to that operating previously, inasmuch as the one licence fee does not cover multiple repeaters and beacons at any one site.

Question (3) *If the charge is "per frequency", do the SMA realise the massive fee increases that result at typical grouped sites? Is this justifiable considering the "no protection" attitude of the SMA?*

The new apparatus licence fees' structure, which came into force on 3 April 1995, arose out of a recent public inquiry by the Spectrum Management Agency (SMA) into the apparatus licence system. The inquiry concluded that the apparatus licence fee framework should be equitable, efficient and transparent, with licence fees reflecting the demand for and the amount and location of spectrum used as well as the level of SMA costs. Under the new licence fees' structure, some apparatus licence fees have increased while others have decreased, with overall licence revenue from licensed equipment remaining about the same in real terms. The fees paid by amateurs are still considerably less than the fees paid by other commercial users for similar sized and positioned segments of the Spectrum. The SMA will provide protection to any service that has primary status as stated in the Australian Spectrum Plan. This includes amateur repeaters and beacons.

Question (4) *Is it the intention of the SMA to eliminate the Amateur Service from Secondary Service allocations above 30 MHz by the use of Spectrum Licensing?*

The intention of the SMA has never been to eliminate any secondary user in segments of the Spectrum that have been converted to Spectrum Licensing. Secondary users are free at any time to approach the incumbent Spectrum Licensee for access to their acquired spectrum as a secondary user on a no interference basis. This is not dissimilar to the system operating at present where secondary services are not granted any protection from interference from primary services and, conversely, may not cause interference to that service. Secondary services may be subject to relocation if and when spectrum is required for primary services. Under past practice for apparatus licensing, the SMA had a role in coordinating secondary services with primary services. However, the concept of a "spectrum property right" implies that the SMA delegate most of its powers to the spectrum licensee, who in fact becomes the manager of the spectrum defined within the spectrum licence. The management right implies a right to either grant or deny secondary access on whatever terms the licensee thinks fit. The analogy is that of a private landlord having the option of leasing his or her property to tenants.

Question (5) *In the first round of proposals, 1260-1300 and 2400-2450 MHz are said to be up for Spectrum Licensing. What consideration has the SMA given to the need to continue to make these bands available for Amateur Radio Service self training and technical investigation in coordination with international practice?*

Firstly, the description of the 2400-2450 MHz band segment that appeared in the discussion paper was an error. The band that the SMA proposes to spectrum licence is the 2300 to 2400 MHz band, which is allocated on a primary basis to ISM services. This error has been advised to the WIA. The segment from 2400-2450 MHz is unsuitable for Spectrum Licensing because of its use for ISM applications, including microwave ovens.

At no stage in the discussion paper did the SMA suggest that the 1260-1300 MHz band is "up for spectrum licensing". This band was identified as a band that may be potentially suitable for Spectrum Licensing, but only subject to much more detailed evaluation, which is not proposed at this stage.

Spectrum Licensing was designed as a tool to facilitate the best usage of the Radiofrequency Spectrum for the whole of the community. In keeping this in mind the SMA is required to consider the needs of all Spectrum users and not just the those of particular groups, commercial or otherwise.

Question (6) *Is the SMA aware of the existing WIA band plans for these allocations, which are indicative of current activities?*

The SMA has a statutory obligation to comply with the Statutory Spectrum and Frequency band plans developed under the Radiocommunications Act 1992. Whilst the SMA considers the views of all Spectrum users, it is ultimately the blueprint outlined in these band plans that is legally binding on the SMA in making decisions on use of the radiofrequency spectrum. The WIA band plan is modelled on the framework of these statutory plans.

(We regret that this WIA News item was held over from last month due to space problems. Prod Ed)

Contests

*Peter Nesbit VK3APN — Federal Contest Coordinator**

Contest Calendar Oct — Dec 95

Oct 1	RSGB 21/28 MHz Contest Phone	(Sep 95)
Oct 7/8	VK/ZL/Oceania DX Contest Phone	(Aug 95)
Oct 14/15	VK/ZL/Oceania DX Contest CW	(Aug 95)
Oct 14/15	JARTS WW RTTY Contest	
Oct 15	RSGB 21/28 MHz Contest CW	(Sep 95)
Oct 21/22	Worked All Germany Contest Mixed	(Sep 95)
Oct 28/29	CQ WW DX Contest Phone	(Sep 95)
Nov 1/7	HA-QRP Contest	
Nov 4/5	ARRL International EME Competition	(*QST* Sep)
Nov 11	ALARA Contest	
Nov 11/12	WAE RTTY DX Contest	(Jul 95)
Nov 11/12	OK-DX CW Contest	
Nov 25/26	CQ World-Wide DX CW Contest	(Sep 95)
Dec 2/3	ARRL 160 m Contest	
Dec 9/10	ARRL 10 m Contest	
Dec 25 — Jan 28	Ross Hull VHF/UHF Contest	
Dec 31	ARRL Straight Key Night	

I recently received a letter and computer print-out from Martin Luther VK5GN, drawing attention to a number of amateur radio discussion groups on the Internet. He enclosed a list of 20 such groups, covering equipment, antennas, DXing and contests, to name just a few. There are many other groups as well.

One popular group is "CQ-Contest@TGV.COM" which, despite the name, carries discussions on all contests, not just those run by CQ Magazine. Readers with access to the Internet may like to check it out.

One of the topics currently being discussed is a "System for Rating Contest Operators", represented by Ward N0AX. Martin's print-out runs to 14 pages plus supplements, but basically it describes a system in which circular regions are established for each significant contest, such that each region contains a certain number of entrants in the same category. The entrants' scores are then converted to "ratings", with the highest score producing a rating of 1000, and lower scores proportionally less. Therefore, in each region, entrants would receive a rating between zero and 1000, depending on their score. Different regions would apply to each contest.

Each operator's ratings for the contests entered during the preceding 12 months would then be averaged, using a sliding window. By comparing his current rating to his average rating, an operator could quickly see whether his performance is improving or declining, and how it compares to others in the same peer group ("his" also means "her", of course).

To compensate for variations in operator ability and commitment, the proposal suggests the establishment of three groups, corresponding to beginner, experienced and expert, and suggests that an operator move up or down one group if his average rating exceeds 900 or falls below 200. Within each group, ratings would be normalised only to the highest score in that particular group, not the highest score overall. By this means, the high scores consistently achieved by a very experienced operator would not depress the ratings of the less experienced operators in the lower groups.

It should be pointed out that the proposed system is not a contest, and there are no winners, losers, or awards. The objective is simply to provide contesters with a useful yardstick of their own performance against others, and also against their own previous performance. The ratings are determined solely from published results, the calculations are simple, and the only additional information needed is the approximate station locations from a callbook.

My initial reaction to the scheme was somewhat sceptical, mainly because the proposed scheme suggested that the size of the regions should be chosen so that there were 10 entrants in each category. For most contests in Australia, this would require regions to include south-east Asia and probably half of Russia as well! I don't think this was intended by the scheme's originators, who obviously designed it for the USA, which has a much higher level of contest participation than Australia.

However, smaller numbers of stations in each region should work just as well and, on further reflection, the proposal really does seem to have a lot of merit. If the ratings were to be published on a regular basis, then instead of having our scores buried in results somewhere or other (which are quickly forgotten and generally overlooked by most other competitors anyway), our callsigns and ratings would be there as a continuous reminder of where we stand in relation to other entrants, and also as a reminder not to rest on our laurels too much or we will be quickly overtaken!

What do you think of this idea? If you are lucky enough to have Internet access, I suggest you search out the above-mentioned discussion group and study the latest proposals. Otherwise, I would be happy to send a photocopy of Martin's print-out, upon receipt of an SASE (large envelope please). The above is highly summarised, and the full text will make much more sense. Would anyone be willing to administer such a scheme? If so, please let me know.

Many thanks to Martin for a most interesting and informative letter, and hopefully we will all be hearing more about a contest rating scheme for Australia in due course

Thanks are extended to the contest managers and contributors to this month's column, including VK2DMS, VK2SRM, VK5GN, HA5JJ, OK2FD, *CQ*, *QST*, and *Radio Communications*. Until next month, good contesting!

73,
Peter VK3APN

Addendum to Results of 1995 John Moyle Field Day Contest

As hard as one tries to get it right the first time, the odd thing still slips through as a reminder that Murphy is alive and well. The addendum published last month not only failed to mention VK4KAC's score, it also got his name wrong! So here it is, properly this time: "Congratulations to Bernard VK4KAC, who obtained a score of 1820 points in this year's contest, gaining him first place and a certificate in the Portable, 24 hour, Single operator, All band, Phone section" (apologies to VK4KAC)

4th JARTS RTTY Contest

14/15 October, 0000z Sat to 2400z Sun

This contest is sponsored by the Japanese Amateur Radio Teleprinter Society, and is open to amateurs worldwide on 80-10 m. Categories are single operator all band, multioperator single Tx, and SWL. Use 3520-25, 7025-40, 14070-112, 21070-125, and 28070-150 kHz. Exchange RST and

DICK SMITH
ELECTRONICS

EX-DEMO CLEARANCE!

YAESU FT-1000

HURRY, VERY LIMITED STOCKS!

Now's your chance to get the 'Best of the Best' at a bargain price! Right now you can pick up an ex-demo FT-1000 deluxe HF all-mode transceiver and save $1000. Here's what the experts have to say about this incredible transceiver...

On Operation
" The layout of the front panel of the FT-1000 is just right...I reckon the FT-1000 is (operationally) far less complex than either the Icom IC-781 or the Kenwood TS-950S " - ARA
" I found the FT-1000 easier to learn and use than any other radio in its class." - QST

On Documentation
" Clearly written and complete, and includes a complete set of schematics and many high quality photos." - QST
" The quality of printing and presentation of the book is the best I have ever seen.. " - ARA

On the Receiver
" this rig has a very strong receiver; it has the best overall performance (in terms of sensitivity and dynamic range) and the highest third order input intercept of any commercial radio ever tested in the ARRL lab." - QST*
"The direct digital synthesizer works very well and produces receiver performance that sets new standards." - AR
"I found the receiver in the FT-1000 to be astonishingly sensitive and immune to cross modulation. ." - ARA

Transmitter -SSB
" The FT-1000 is easy to adjust and use...The processor adds quite a bit of punch to SSB signals; hams I worked on SSB with the FT-1000 gave me good audio quality reports" - QST

Transmitter - CW
" CW keying was a delight. power output was checked in the CW mode and found to be well in excess of 200 watts on all bands. ." - AR
" CW operation with the internal keyer is a breeze ." - QST

Conclusion
"...the FT-1000 represents unbelievable value..." - AR
" It's an excellent set worthy of accolades and rave " - ARA
" ... the FT-1000 needs little for me to consider it the ultimate contesting and DXing machine available today..." - QST*
* Review with optional filters fitted

The FT-1000's combination of Direct Digital Synthesis, high output power, ultra-high performance receiver and easy to use controls put it far ahead of the competition Hurry in today and check out our limited number of ex-demo models all with a full 2 year warranty Wouldn't you rather be using the "Best of the Best"?
Cat D-3200

$4995

(Ex-demo models only, microphone extra)
Interested in more information? Copies of our 12 page colour brochure are available upon request. Phone (1800)226610 or (02) 9373366

SPECIAL OFFER

Purchase an FT-1000, and we'll provide an MD-1 Desk Microphone, SP-5 or SP-6 extension speaker, BPF-1 Band Pass Filter, TCXO-1 Temp Compensated Oscillator, and four 455kHz 3rd IF crystal filters for just $500 (valued at over $1300 if purchased separately) This offer is only valid from 28/9/95 when purchased with the FT-1000, and is subject to accessory availability
Some models may be shop soiled. However all come with a full 2 year warranty

Ex-demo models units are available at these stores:
Please phone to check availability.
North Ryde (02) 878 3855, Bourke St., Melb. (03) 9639 0369, Adelaide (08) 232 1200

DICK SMITH ELECTRONICS

Top Performing Transceivers From Yaesu!

FT-11R Micro Deluxe 2m Handheld

Designed to fit comfortably in your hand, it's just 57 x 102 x 25 5mm (W.H.D) including the FNB-31 NiCad pack, and weighs only 280 grams.The result of the latest in miniaturisation, microprocessor control and FET technology, the FT-11R provides a large back lit LCD screen with full frequency readout, 150 memories (75 in alpha-numeric mode), full function keypad with easy SET mode, and up/down thumb control Volume and Squelch settings. A high efficiency FET RF amplifier provides 1 5W output standard from the compact 4.8V battery pack, and up to 5W output from 9.6V (using an optional battery pack or PA-10 mobile adaptor) A range of battery life extenders, including Auto Battery Saver, Tx Save, and Auto Power Off (with ultra-low 20uA consumption) are included Australian version Auto Repeater Shift, DMTF based selective calling and paging, extended 110-180MHz receiver coverage (including the AM aircraft band), and a variety of scanning modes are also provided Other advanced features include naming of memory channels, DTMF Auto-dial memories, and DTMF Message Paging with up to 6 alpha-numeric characters. A large range of accessory lines are also available for easier customisation of your transceiver. Comes with an FNB-31 600mA/H NiCad, belt clip, approved AC charger, CA-9 charge adaptor and antenna.

Cat D-3640

2 YEAR WARRANTY

$599

FT-2200 2m Mobile Transceiver

A compact, fully featured 2m FM transceiver with selectable power output of 6, 25 and 50 watts, it includes the latest convenience features for more enjoyable mobile or base station operation Built around a solid diecast chassis, it provides 49 tunable memories, a large variety of scanning modes, an instant recall CALL channel, 7 user-selectable channel steps from 5kHz to 50kHz and is just 140 x 40 x 160mm (not including knobs) Backlighting of the large LCD screen, knobs and major buttons is even automatically controlled to suit ambient light conditions. Also provided is a 38 tone CTCSS encoder, DTMF based paging and selective calling with Auto-Page/Forwarding features, and 10 DTMF auto-dial memories. The LCD screen provides a highly legible bargraph Signal/P.O meter plus indicators for the various paging and repeater modes. An optional internal DVS-3 digital recording/playback board can also be controlled from the front panel, giving even greater messaging flexibility. Supplied with an MH-26D8 hand microphone, mobile mounting bracket and DC power lead

Cat D-3635

2 YEAR WARRANTY

$699

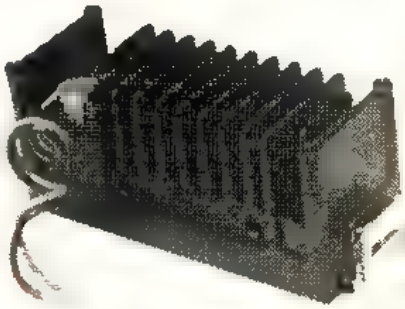
FT-290RII 2m All-Mode Transportable

Covers 144-148MHz and features FM, SSB (USB/LSB), and CW operation with 2.5W or 250mW switchable output power, twin VFOs and 10 memories that store mode and simplex or repeater frequencies. Selectable tuning rates are provided for SSB/CW and FM (SSB- 25Hz/100Hz/2.5kHz and 100kHz; FM- 5/10/20kHz and 1MHz) Mode specific features such as a noise blanker and clarifier control for SSB/CW, plus a full set of functions for FM repeater operation make this unit very simple to operate It comes with a flexible rubber antenna, an FBA-8 battery holder, and a handheld microphone.

Cat D-2875

2 YEAR WARRANTY

$999



Buy Both For Just $1195

SAVE $100

FL-2025 2m Amp

Turn your FT-290II into a powerful mobile/base transceiver - this bolt-on RF amplifier will replace the FBA-8 battery holder on the FT 290RII, and boost the transceiver's output to 25 watts. Requires 13.8V DC.

Cat D-2863

$299

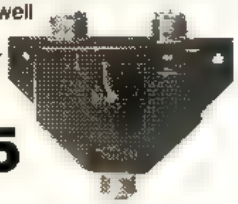
A Great Range Of Accessories!

2-Way Coax Switch

A heavy-duty, 2 way coax switch that's suitable for Amateur, CB or commercial applications. It's well constructed with a die-cast case and can handle up to 2kW P.E.P. or 1kW CW at 30MHz with less than 0.2dB insertion loss.

Cat D-5200

$39.95



6m 1/2 Wave Base Antenna

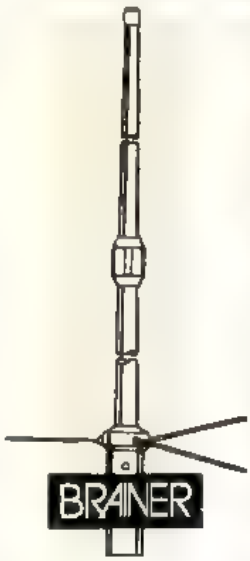
A rugged Australian-made vertical antenna designed to cover the 51 to 54MHz range, with minimum SWR around 53MHz. Built using high tensile T81 grade aluminium, it's just 2.9m long with a sealed base section and 100W minimum power rating. Complete with mounting hardware.

Cat D-4825

$69.95

High Performance 2m/70cm Base Station Antennas

Our range of top-name Brainer base station antennas offer outstanding quality and exceptional value. They are stacked colinear types providing high gain, wide bandwidth and a low radiation angle for extended range. The fibreglass reinforced polyester (FRP) outer tubing randome and gasket seals provide excellent all-weather operation, and they are supplied with compact ground-plane radials for a clean radiation pattern. Stainless-steel mounting hardware ensures a long trouble-free life. They also feature comprehensive instruction sheets to make installation and set-up easier. Both come with a 1 year warranty.



2m/70cm GST-1

Frequency: 144-148MHz, 430-450MHz
Gain: 6dB on 2m, 8dB on 70cm
Max. Power: 200W
Length: 2.5m
Type: 2 x 5/8 wave (2m)
4 x 5/8 wave (70cm)
Connector: SO-239 socket

$199

Cat. D-4830

2m/70cm GST-3

Frequency: 144-148MHz, 430-440MHz
Gain: 7.9dB on 2m, 11.7dB on 70cm
Max. Power: 200W
Length: 4.4m
Type: 3 x 5/8 wave (2m)
7 x 5/8 wave (70cm)
Connector: SO-239 socket

$299

Cat. D-4835

Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV is a 5-band HF trap vertical which continues the Hustler tradition of quality and performance. It incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1 kw (PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike some other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.

Cat D-4920

HUSTLER **$329**

Revex W56ON HF/VHF/UHF SWR/PWR Meter

Another quality Revex wide-band SWR meter, offering 2 inbuilt sensors for 1.8MHz to 525MHz coverage! Provides measurement of 3 power levels (3W, 20W, 200W), SWR (at low and high power levels) and uses an N-type socket for the VHF/UHF sensor to ensure minimal loss. Measures 120 x 80 x 85mm.

Cat D-1375

$369

PHONE, FAX & MAILORDER SERVICE & Yaesu Brochure Hotline
Outside Sydney (FREE Call) 1800 26 3922
Sydney and Enquiries - 9937 3366
Fax: (02) 805 1986 or write to:
Dick Smith Electronics, Mail Orders, Reply Paid 160
PO Box 321 NORTH RYDE NSW 2113
All major Credit Cards accepted. O/Nite Courier Available.
Yaesu stocks and some antennas not held at all stores, please contact your local store for availability, or phone 1800 22 6610

DICK SMITH ELECTRONICS

NSW • Albury 21 8399 • Bankstown Square 707 4888 • Blacktown 671 7722 • Bondi 387 1444 • Brookvale 9905 0441 • Burwood 744 7299 • Campbelltown 27 2199 • Chatswood 411 1955 • Chullora 642 8922 • Gore Hill 439 5311 • Gosford 25 0235 • Hornsby 477 6633 • Hurstville 580 8622 • Kotara 56 2092 • Liverpool 600 9888 • Maitland 33 7866 • Miranda 525 2722 • Newcastle 61 1896 • North Ryde 9937 3355 • North Sydney (Greenwood Plaza) 9964 9468 • Orange 618 400 • Parramatta 689 2188 • Railway Square 211 3777 • Penrith (047) 32 3400 • Sydney City York St 267 9111 & Mid City Centre 221 0000 • Tamworth 66 1711 • Wollongong 28 3800 **ACT** • Belconnen (06) 253 1785 • Fyshwick 280 4944 **VIC** • Ballarat 31 5433 • Bendigo 43 0388 • Box Hill 9890 0699 • Coburg 9383 4455 • Dandenong 9794 9377 • East Brighton 9592 2366 • Essendon 9379 7444 • Frankston 9783 9144 • Geelong 232 711 • Highpoint 9318 6300 • Melbourne City 399 Elizabeth St 9326 6088 & 246 Bourke St 9639 0396 • Richmond 9428 1614 • Ringwood 9879 5338 • Springvale 9547 0522 **QLD** • Aderley 3356 3733 • Booval 3282 6200 • Brisbane City 3229 9377 • Buranda 3391 6233 • Cairns 311 515 • Capalaba 3245 2870 • Chermside 3359 6255 • Indooroopilly 3878 4944 • Maroochydore 791 800 • Mermaid Beach 5578 5600 • Rockhampton 27 9644 • Southport 5532 9863 • Toowoomba 38 4300 • Townsville 72 5722 • Underwood 3341 0844 **SA** • Adelaide City Pulteney St 232 1200 & Myer Centre 231 7775 • Elizabeth 255 6099 • Enfield 260 6088 • St Marys 277 8977 • Westlakes 235 1244 **WA** • Balcatta 240 1911 • Cannington 451 8666 • Fremantle 335 9733 • Perth City 481 3261 • Midland 250 1460 • Northbridge 328 6944 **TAS** • Glenorchy 732 176 • Hobart 31 0800 • Launceston 344 555 **NT** • Darwin 81 1977
* STORES IN RED ARE OPEN SUNDAYS. STORES ACROSS AUSTRALIA AND NEW ZEALAND

operator age (00 for YLs; 99 for multiops). Score two points for each QSO in own continent (as per WAC boundary), and three points outside own continent. Multipliers are the total DXCC countries, plus JA/VK/W/VE call areas worked, per band. You can work your own country or call area for a multiplier. Final score equals total QSO points x multiplier. Send logs postmarked by 31 Dec to: "JARTS Contest Manager, Hiroshi Aihara JH1BIH, 1-29 Honcho, 4 Shiki, Saitama, 353 Japan"

HA-QRP 80 m CW Contest

0000z 1 November to 2400z 7 November

This international contest takes place each year during the first seven days of November, and is open only to stations *running a maximum of 10 W input power.* Use 3560-3600 kHz, CW only. Call "CQ TEST QRP", and exchange RST, QTH, and names. Score one point per QSO with own country, and two points per QSO with others. Stations can be contacted only once during the contest for points credit. The final score equals QSO points times DXCC countries worked. Logs must show date, time, callsign, reports, and QTH and name of station worked. Summary sheet must include first name and QTH sent during the contest, Tx input power, and Tx output device. Send logs postmarked by 21 November to: Radiotechnika Szerkesztosege, Budapest, Pf 603, H-1374 Hungary. All entrants will receive participatory certificates, and outstanding scorers will receive a free subscription to Radiotechnika magazine for one year.

ALARA Contest

Saturday, 11 November, 0001-2359z

This Phone/CW contest is open to amateurs and SWLs throughout the world. In it, YLs can work anyone, whereas OMs and Clubs can work YLs only. Bands are 80-10 m, and the following frequencies are suggested: 3560-3590, 7070-7100, 14250-14280, 21170-21200, 21380-21410, and 28380-28410 kHz. Each station can be contacted twice per band — once on phone, and once on CW. No lists, nets or cross-mode contacts please.

YLs should call "CQ ALARA CONTEST" or "CQ TEST ALARA", and OMs "CQ YL". ALARA members will send RS(T), serial number, and name. YL non-members, OMs and Club stations will send RS(T), serial number, and name. Club stations **must** identify as a club station each contact, and cannot use personal callsigns during club operation.

Score five points for each QSO with an ALARA member, four points for each QSO with a YL non-member, and three points for each QSO with an OM or Club station. On CW, if either operator is a Novice, score double points. SWLs should score five points per ALARA member logged, and four points per YL non-member logged.

Logs should show date/time UTC, band, mode, callsign worked, RS(T)/serial sent and received, name of operator worked, status of the station worked (YL ALARA, YL non-member, or Club), and points. Attach a cover sheet showing full name, callsign, operator's address, claimed score, and a signed declaration "I hereby certify that I have operated in accordance with the rules and spirit of the contest". Send the log to: "Mrs Marilyn Syme VK3DMS, Box 91, Irymple 3498, VIC, Australia" to be received by 31 December.

Certificates will be awarded for the following: top score overall; top phone

The *NEW* PacComm PicoPacket

Compact! Only 25 x 62 x 75 mm. Smaller than a pack of cigarettes.

Powerful! Z-181 high integration MPU with one megabyte address space. A real powerhouse.

Inexpensive! Only **$245** (32k RAM model). Introductory Price.

Perfect Beginner's TNC! Every feature you would expect in a 'normal size' AX.25 1200 baud TNC, plus.

On-Line HELP! So easy to learn! Type Help and a command name (or part of a command name) and receive the correct spelling, shortest abbreviation, default value(s), acceptable values, and a short explanation of its function.

Terminal programs for both DOS and Windows™ included.

Personal Message System with all the state-of-the-art features

APRS (Automatic Packet Reporting System) compatible comprehensive GPS support built-in.

EPROM and RAM are socketed for ease in upgrading firmware and increasing memory.

RJ-45 serial cable with adapter to DE-9S. RJ-45 radio cable has real wire — solders easily to radio connectors.

Instruction manual, schematic, Quick Command listing, power cord included.

Options
128k or 512k RAM.

Full-time GPS port (second serial port) with real-time clock and 128k.

Mating GPS receiver. A Trimble SVeeSix-CM2 receiver fits in a separate case the same size as the Pico and attaches via an audio stereo cable.

email address: kevcav@gil.ipswichcity.qld.gov.au

Kevin Cavanagh
222 Brisbane Valley Highway
Wanora (Ipswich) Qld 4306
Tel (074) 643-954 Fax (074) 643-963

Kevin's sales only **FREECALL**
1800-639-099
It's the putting RIGHT that counts

PacComm

only score, top VK YL CW; top VK YL Novice CW (Florence McKenzie Trophy and certificate), top ALARA member in each country and VK call area; top YL non-member in each continent; top OM in each continent; top SWL in each continent, top VK Novice; top overseas YL CW; and top VK club station Trophies will be awarded to the top scoring VK YL, and top scoring DX YL.

The Florence McKenzie CW Trophy will be awarded to the highest scoring VK YL Novice (minimum 50 points). Because of its size and weight, the actual trophy will not be forwarded, and instead a certificate bearing a photo of the trophy will be sent to the winner. To assist checking, Novices entering for this award are requested to indicate their CW scores separately.

Logs must be legible (no carbon copies please), and will not be returned. The contest manager's decision will be final, and no correspondence will be entered into.

OK-DX CW Contest

11/12 November, 1200z Sat to 1200z Sun

This CW contest occurs in the second full weekend in November each year. Bands 160-10 m. Categories are: Single operator, single and multiband, multioperator, single and multi Tx; QRP, single and multiband (max 5 W out); and SWL. Single operator stations operate max 20 hours, with minimum one hour rest periods. Multiband stations apply "10 minute band change rule" (multi Tx stations are exempt from this rule).

Send RST plus serial; OK stations will send RST plus three letter district code. DX (VK) stations score 10 points per OK/OL/OM QSO, and one point per QSO with another country. Multipliers are the sum of DXCC countries and OK districts on each band; final score is QSO points (all bands) times multiplier from all bands.

Note rest periods in the log, and use a separate log for each band. Cross-check sheets are required for 200+ QSOs. Logs can also be submitted in ASCII on DOS disk. Entries should be postmarked by 15 December, and sent to: "CSRK, Box 69, 113 27 Praha 1, Czech Republic".

Results of 1994 CQ WPX SSB Contest

VK3EW received the AH9B Trophy for top Single Band score in Oceania (7 MHz), and VK4LW achieved the top score on 28 MHz for Oceania. The following were all awarded certificates.

(Callsign/Band/Score/QSOs/Prefixes; Asterisk = low power).

Single Operator:

VK5GN	A	3,762,844	1921	668
VK3TZ	A	3,516,816	1705	656
VK6HQ	A	72,044	311	217
VK4LW	28	194,427	305	171
VK4AAR	14	437,976	499	308
VK3EW	7	2,022,804	843	414
*VK4ICU	21	214,848	382	192
*VK8BE	21	4,320	40	36
*VK1LC	14	16,416	76	72
*VK3SM	14	1,825	25	25
VK9NS	A	2,971,080	1696	567
P29DK	A	215,897	338	209
*P29NB	A	229,770	359	230

Single Operator QRPp:

VK4NEF	A	53,846	182	109

Multioperator Single Transmitter:

VK1DX		3,302,352	1852	568
VK4IZ		1,971,576	1404	417

Results of 1994 CQ WPX CW Contest

VK2AYD had the top score on 21 MHz for Oceania. All VK entrants were awarded certificates. The results, from CQ May 95, are as follows:

VK4EET	A	1,311,240	762	392
VK1FF (op WB2FFY)	A	962,082	802	339
VK2AYD	21	256,410	381	231
*VK2AKP	A	1,064,362	828	338
*VK4EMM	A	515,890	449	230
*VK4XA	21	67,828	186	124
*VK4TT	14	190,548	324	201

Results of 1995 WIA Novice Contest

Presented by Ray Milliken, VK2SRM

28 logs were received for this year's contest, including 22 Section A (Phone) and 6 Section B (CW). No entries were received for Section C (SWL).

This year the Keith Howard VK2AKX Trophy went to VK4NBC, the Novice with the highest score in Section A (Phone), and the Clive Burns Memorial Trophy went to VK2VZB, the Novice with the highest score in Section B (CW). These perpetual trophies are on permanent display at the Federal Office, and in each case the winner will receive an inscribed wall plaque.

The number of entries received was well down on the 50 received last year, no doubt due to the very poor conditions this year. Whilst a bit disappointing, hopefully conditions will be much better for next year's contest. Many thanks to the entrants who included comments with their logs, which have all been noted.

National Winners:

Section A, Novice	VK4NBC
Section A, AOCP	VK1PJ
Section B, Novice	VK2VZB
Section B, AOCP	VK2SPS

Individual Results, Section A (Phone):

= National winners
** = Highest Novice score for each state (excluding national winners)
* = Special awards
(C) = Club

VK1PJ #	980
VK4NBC #	629
ZL1RK * (C)	599
VK5MAP **	550
VK2RD *	481
VK4MOJ **	400
VK2VRA **	391
VK3MGK **	391
VK3BML * (C)	383
VK3MAZ	376
VK6WJH *	310
VK3MSL	266
VK7KSM **	230
VK5UE	209
VK2SPT	205
VK4BB	130
VK3LBA	126
VK2VGC	121
VK2NPH	111
VK6ABC	87
VK3CAM	86
VK1JE	69
VK8NSB **	67

Individual Results, Section B (CW):

VK2SPS #	66
VK2VZB #	60
VK1FF	51
VK2CW	47
VK2ALS	31
VK5UE	31

*PO Box 2175, Caulfield Junction, VIC 3175

Divisional Notes

Forward Bias — VK1 Notes

Peter Parker VK1PK

VK1 Says No to Morse

To gauge members' opinions on whether Morse proficiency should remain an international requirement for amateur operation below 30 MHz, the VK1 Division held a discussion forum at its August general meeting. After a range of opinions was aired, the matter was put to the vote. The result was clear-cut. 10 people voted to retain Morse as an international requirement, while 22 wanted it to be for national governments to decide their own policies on amateur access to the HF bands. The vote means that, should this question be raised at Federal WIA conventions, VK1 will be supporting a change to ITU requirements.

Conversion Night A Success

Members at the August General Meeting enjoyed a presentation on

converting AWA carphones to six and two metres. These transceivers were sold by the VK1 Division some time ago. Much of the information given was also applicable to converting other VHF transceivers to six or two metres. Thanks to Paul VK1BX and Rob VK1KRM for delivering the presentation.

Ten Minute Ten Metre Scramble Results

Buoyed by the success of the VK1 two metre scramble, held in May, the VK1 Division held a scramble on ten metres on August 2, just after the weekly broadcast. Five callsigns were heard in the event, which ran for ten minutes. While not as popular as the two metre scramble, those who participated enjoyed themselves.

Congratulations to Joe VK2NJG and Jim VK1OO who tied for first place, with a score of four points. Joe's effort was particularly noteworthy as he was operating from Murrambateman. Harvey VK1HK came third with three points. The Divisional callsign VK1WI was also active during the scramble. Those who worked it received a bonus point.

JOTA on This Month

Just a reminder that the annual Jamboree of the Air is on later this month, on the weekend of 21 and 22 October. The success of the event depends on the participation of amateurs. Details of how you can be involved in this unique event will be given in the VK1WI Broadcast as they come to hand.

New Repeater Committee Established

To co-ordinate and construct future amateur repeaters in the ACT, a VK1 Repeater Committee was formed at the VK1 Division's July General Meeting. The committee's convenor is Neil VK1KNP. The first meeting of the committee was held on 8 August, in Room 3 at the Griffin Centre. Held on the second Tuesday of the month, the next meeting is scheduled for 10 October. Neil would like to hear from any amateur in the Canberra region interested in experimenting with repeater techniques to join the Committee. Neil can be contacted on packet at VK1KNP @ VK1ZAO BBS.

VK1WI Now on Packet

In perhaps the biggest change to the weekly broadcast since it began, the text of the VK1WI Divisional broadcast is now posted on packet radio. The change will make it easier for those unable to listen on Wednesday evenings to keep in touch with local and national amateur radio happenings. With the broadcast now being as close as your local packet BBS, you can easily refer to the packet edition if you miss an important address or telephone number on the voice broadcast. The hearing impaired, other Divisional Broadcast Officers and interstate amateurs are among those starting to benefit from the new service.

The contents of the Packet News Service are very similar to the voice broadcast. The only differences are that the packet edition does not include WIA Disposals and some Federal News items. You will find the bulletin by listing all messages addressed to "WIA".

VK2 Notes

Richard Murnane VK2SKY

No News is Good News, so perhaps the less said, the better! This has been a relatively quiet month for the VK2 Division, with no major dramas to report. However...

Tower Troubles

You probably would have heard on the weekly broadcast about community reaction to the increasing number of cellular phone towers springing up everywhere. Under current legislation, the telecommunication carriers are exempt from the usual planning requirements when erecting these towers.

Public concern, over possible health risks arising from exposure to electromagnetic radiation from mobile phones, has made itself felt at a couple of local Sydney councils. They're proposing to introduce new guidelines governing the installation of towers and aerials. The councils have not limited themselves to the health issues (as the health risks are still hotly debated), but are taking into account the visual impact of the installations as well. Sadly, non-amateurs don't always share our sense of aesthetics.

The Division is mounting a test case in court to ensure that these guidelines do not adversely impact amateur operations. Stay tuned to the Division's weekly broadcast for updates as they occur.

That Time of Year Again

"In Spring, a young man's heart lightly turns to thoughts of..." Let's not be sexist here; the young ladies have something of an interest as well. Yes, the international Scouts and Guides Jamboree of the Air (JOTA) is upon us once more, on the weekend of 21-22 October. While many will explore the joys of other hobbies that weekend, many will give thousands of youngsters their first exposure to amateur radio. The event is as much fun as you make it; so, as the saying goes, *"Be In It"*.

Another major Amateur Radio event this month is the Hawkesbury Classic Paddle, on 14-15 October. This is one of the big WICEN training events of the year; it's terrific fun, a great challenge if you haven't operated portable before, and also helps raise money for charity. Amateur radio benefiting the community.

Thought for the Month

"Don't find fault. Find a remedy." — *Henry Ford.*

VK3 Notes

Murray Lewis VK3EZM

WIA VICTORIA MORSE SURVEY

The Morse code survey included in September Amateur Radio contained a printing error. The return date was indicated as 30.08.95. It should have been 30.09.95.

The return date is extended to 10.10.95. Additional survey papers may be obtained by telephoning WIA Victoria.

JOTA Help Wanted

This year the Victorian JOTA Council of the Scout Association of Australia aims to increase the activity of the annual event. Kent Cochran VK3TER, who is a member of the JOTA Council, says extensive publicity is aimed directly at scout and guide groups. The Jamboree of the Air will be held on October 20 to 21. Radio amateurs are required to assist with the work in this event, which always stimulates considerable interest among young people in amateur radio. Please contact Kent VK3TER, after business hours on phone (03) 9384 1610, with an offer to help or for further information.

Show the Badge

Most of the radio amateurs who are "old-timers" have the WIA winged emblem badge and a few words on their QSL cards to indicate they are WIA members. However, a recent survey of cards handled by the VK3 Bureau discovered that any indication of membership is neglected by most of the more recent radio amateurs. The outwards bureau is a free service only enjoyed by financial members of WIA Victoria. When designing your QSL cards, please give some thought to using the WIA badge. Make your QSL cards to show you're proud to be a WIA member.

Recycle Unused Equipment

New equipment is too expensive for many new radio amateurs, who consequently search for second-hand HF, VHF and UHF transceivers and ancillary equipment. Your unused rigs and gear can help many of these newcomers become operators. Commercially made equipment in proper working order can be placed on display for sale at the WIA Victoria office. The service is free for members, and certain conditions apply. For more information contact the Secretary/Manager, Barry Wilton VK3XV.

Pirate or Mistake?

Jock Walsh VK3UB has received over 200 QSL cards during the past 18 months for contacts he has not made! The cards confirm CW QSOs, mainly on 14 MHz. Jock does not operate CW, but the cards keep on coming. Enquiries to the SMA confirm that the callsign has not been "double issued", and they can provide no explanation. It would be appreciated if all CW operators could keep their ears open for this one, and we may be able to track down the source. There may be a pirate, or perhaps it could be a genuine error. There is some evidence that the operator is bilingual. If you can help with any information, please contact the WIA Victoria office.

Divisional Broadcasts

Members who attended the Annual General meeting will remember the President's statement that a priority of the Council for 1995/96 was to achieve a fortnightly broadcast through VK3BWI. This month Council is able to announce that a twice per month broadcast through VK3BWI will commence.

Paul Girling VK3ALE and Dennis Babore VK3BGS have now joined the roster as an additional production team. Thanks Paul and Dennis, who will commence with the broadcast on 8 October 95. The next broadcast will go to air on 22 October 95, and will be followed by broadcasts on the second and fourth Sunday of each month. Please note, however, there will be no broadcast on 24 December, Christmas eve, but VK3BWI will recommence on 14 January, with the first broadcast for 1996.

Until last month, VK3BWI broadcasts were produced by Bill Trigg VK3JTW, Jim Linton VK3PC, Rob Carmichael VK3DTR and Murray Lewis VK3EZM. All these volunteers will continue as producers on a rostered basis, resulting in our twice per month broadcast on VK3BWI. They are joined by the additional production teams of Chris Platt VK3KCP and David Williams VK3KAB, who commenced on 10 September, and Paul Girling VK3ALE and Dennis Babore VK3BGS.

An encouraging response has been received from some affiliated Clubs who have sent material for the broadcasts. However, the production teams look forward to more news and technical items which could be supplied by other Clubs and individual members. Material suitable for the broadcasts can be sent by fax or mail to the WIA Victoria office.

"QRM" News from the Tasmanian Division

Robin L Harwood VK7RH

On 26 August, the VK7 Divisional Council met at the Domain Activity Centre in Hobart. Several items were raised including site fees, Public Liability Insurance, and continuing problems within the state with packet radio.

The Northwestern Branch reported that, because of high power tariffs, the repeater site at Lonah, near Ulverstone, was turned off, and various VHF beacons were also de-activated. The aim is to have these re-located elsewhere and possibly solar powered. This means that the Divisional broadcast from VK7WI is now on VK7RMD, Mount Duncan, on 146.625 MHz. It was also pointed out that the ATV rebroadcast of the same service has not been aired for some time and hence has been deleted from the broadcast roster.

Other repeater news is that the Southern Branch continues to be concerned about the delays on the new multipurpose tower on Mount Wellington. Those interested in the future of Repeater Two have been meeting and been canvassing various options. However, at this time, no firm decision has been made.

The recent heavy snowfalls on Mount Barrow prevented repair work being carried out on VK7RAA on Mount Barrow, particularly the receive antennas. Difficulty was experienced with both the rebroadcast from Repeater Two on Mount Barrow of VK7WI and on-air contacts. By the time you read this, it will be hopefully rectified.

Council received from Clarrie Hilder VK7HC his resignation as Divisional Awards Manager. We thank Clarrie for his contribution and thoughts regarding the awards structure within Tasmania. As a vacancy now exists, Council calls for expressions of interest in filling this position. These should be directed to the Secretary at 52 Connaught Crescent, West Launceston TAS 7250 as soon as possible.

Problems are continuing on the packet network within Tasmania and these were discussed at the Council meeting. It is apparent that a lot of misunderstanding

Another 1st from Australia for The World

The New Perth Plus 6m & 2m

Now in stock, a range of Outbacker mobile antenna to suit the new generation transceivers, be it the Icom 706 or the Alinco DX-70

All popular HF bands + 6m on the one antenna
80m - 40m - 30m - 20m - 17m - 15m - 12m - 10m - 6m - 2m

Simple to use - Low profile - No tuner required

Write Phone Fax Now! for information on the new Perth Plus

Outbacker Antenna Sales International

Ph (09) 3545444 Fax (09) 3545455

5 Yampi Way, Willetton W.A. 6155

or contact your nearest Ham Store..

Australian Made Australian Owned

has been created through ignorance of how the various packet protocols operate. Congestion on the various designated channels and complaints about inter-BBS forwarding interfering with other packet users has largely contributed to a breakdown in communications between all sections of the packet community. Therefore, Council has suggested that a statewide forum be held to educate users on packet and overcome problems with the various protocols. It is obvious that these hassles are not confined to any one region but are statewide, hence the need to tackle it on a statewide basis.

It has also disturbed Council that on-air arguments on HF over the various protocols has degenerated into a slanging match and has not assisted the resolution of these problems, only added to them by airing them to a national forum. If you have differences with somebody, DO NOT TRANSMIT THEM, but try to iron them out off-air. On-air arguments, especially heated ones, are a no-no in amateur radio.

Therefore, Council would like submissions on organising a seminar on packet radio on a statewide basis, from interested individuals or groups, with a view to overcoming these difficulties. It is imperative that all facets and perspectives of packet activity be covered, from sysops to users, in a calm, rational manner.

Meetings for the month of October are Southern Branch on 4 October at 2000 hours EDT at the Domain Activity Centre; Divisional Council on 7 October at 1030 EDT in the northwest (possibly Penguin); Northwestern Branch on 10 October at 1945 EDT at Penguin High School, Ironcliff Road; and Northern Branch on 11 October at 1930 EDT at Room 17, Alanvale campus of Launceston Institute of TAFE, Block "B".

Well, that is all for this month. If you have any news, you can write to my postal address. Don't forget that the e-mail address is wiatas@tamarcom.com.au.

How's DX

*Stephen Pell VK2PS**

At the end of August, rumours started to spread on the bands that the new sunspot cycle had arrived. News snippets from the USA were quoting various US solar observatories as the proof of the source of information.

Having remembered that I discussed the prospects of the arrival of the new cycle with Dr Richard Thompson of IPS Radio and Space Services in May this year (see *Amateur Radio*, July 1995), I contacted him again to obtain up-to-date information on this matter. Dr Thompson is a scientist based in Sydney with the IPS and works in close co-operation with John Kennewell, a Principal Scientist at the West Australian Learmonth Solar Observatory. Both gentlemen were very willing to give as much information as possible to amateur radio operators about the change of the cycle. Here is a shortened version of a five page fax received from them at the end of August.

For watchers of the solar cycle an important milestone is the appearance of the first sunspot region belonging to the new solar cycle. Contrary to what many people believe, such regions first appear between 12 and 20 months earlier than solar minimum which marks the end of one solar cycle and the start of the next. For this period, old cycle regions co-exist with those of the new cycle.

But how do you distinguish regions of the new cycle from those of the old cycle? Firstly, solar regions have a characteristic magnetic structure. This magnetic structure, or polarity, is opposite for regions in each hemisphere of the sun and reverse for each solar cycle. Thus, a new cycle region has the opposite polarity to that of the old cycle regions in the same hemisphere. Secondly, new cycle regions usually occur at higher solar latitudes than the old cycle regions. Around the time of solar minimum, old cycle regions are appearing at solar latitudes of 5-15 degrees, north or south of the equator. We may have seen the first regions of the new cycle, numbered as Cycle 23. On May 15, the Learmonth Solar Observatory — jointly operated by the Australian Government IPS Radio and Space Services and the US Air Force — observed a region at North 13 degrees. Equipment installed at Learmonth by the US National Solar Observatory measured the region as having reverse polarity to that expected for an old cycle region.

Since then, two further reverse polarity regions have been observed at Learmonth. These were seen on 26 July and on 13 August with latitudes of South 18 degrees and South 20 degrees respectively. The third potential new sunspot group was also observed by the Kitt Peak magnetogram and at the Big Bear Solar Observatory. All the new sunspot groups had the correct hemispheric magnetic polarity for Cycle 23. However, the low latitudes of these groups could possibly call into question their cycle allegiance. In recent cycles, the latitude of the first spotted region has typically lain between 25 and 40 degrees.

The major significance of the new cycle spots lies in their predictive value for a solar minimum. Typically, minimum does not occur until at least 12 months following the appearance of the first spot group of the cycle. Details for the last three cycles are: Cycle 20, first spot 1963, minimum in October 1964; Cycle 21, first spot 15 Nov 1974, minimum in June 1976; and Cycle 22, first spot 31 Mar 1985, minimum Sept 1986. On the basis of past behaviour we would thus expect solar minimum to occur between June and December 1996, and the duration of Cycle 22 to lie between 9.7 and 10.3 years.

It appears that the first sunspot regions of Cycle 23 have arrived. Solar minimum and the rise of Cycle 23 may be more than a year away. Nevertheless, the first indication of the new cycle is an exciting event. It holds promise of all the events which make a solar cycle of great interest and affect global communications, satellite navigation, geophysical exploration and a host of other such effects.

Earlier on the same day, Dr. Thompson said: *For a solar scientist it is now the time to crack a bottle of champagne. However, radio amateurs will be well advised not to crack the bottle yet, but put it in the fridge and look at it in a year's time, to see whether the solar minimum has arrived or not.*

Libya — 5A1A

The Ukrainian operators left Libya on 25 July, confirming the QSL information shown in my September column (CW to LZ2UA and SSB to OM3JW). They made 35,527 CW/SSB QSOs on a variety of bands and have trained three local operators, Ali, Usaama and Mufti who are members of the Libyan Youth League which was established in Libya by the Ukrainians. 5A1A is the only authorised amateur activity in Libya. These operators are active from time to time on various bands and nets.

Dan W4BRE reported that all the 5A1A documentation was sent to the ARRL DXCC desk on 10 August by the International Youth League of Ukraine and it has been received by the DXCC. The European DX Net, conducted by Selim OE6EEG on 14243 kHz at about 0600 UTC on Saturdays and Sundays, had many VKs and ZLs patiently waiting for the opportunity to make their first contact with Libya, including yours truly.

The signal of operator Ali was not very strong but quite workable on the long path to Europe. The postal address for direct QSL cards varies with each operator, but no QSL cards had been printed as at 14 August for these operators. Those who

made the contact with Ali should send their cards with one or two green stamps (IRCs cannot be used in Libya) to: Ali Saleh, PO Box 80462, Tripoli, Libya, Africa.

Huang Yan Dao BS7H
Tung Sha Dao BV9P

If there was ever controversy in granting DXCC status to a "new" country, Scarborough Reef and Pratas Island are good examples. The DXAC and the DXCC awards committee are trying hard to extract themselves from a very sensitive situation. There were several urgent meetings of the two Boards and even the President of the ARRL, Rodney J Stafford KB6ZV, found it necessary to issue a lengthy explanatory statement. The acceptance or non-acceptance of these two "new countries" representing two separate Chinas (PR of C and R of C) became a "hot" issue and, unfortunately, it seems also an amateur "political" problem.

At its 19 July meeting, the ARRL Membership Services Committee (MSC) of the ARRL Board of Directors voted to remove from the Awards Committee Standard Operating Procedure (SOP) an administrative interpretation of a Board motion. The deleted text said in part: *thus it requires a favourable recommendation by the DXAC to initiate a country status review by the Awards Committee.*

All ARRL Directors were present at the meeting, and it was the sense of the meeting that the Awards Committee should review negative as well as positive country status recommendations of the DXAC.

On 25 July, the ARRL Awards Committee voted unanimously that Scarborough Shoal (Huang Yan Dao) should be added to the DXCC list under point 2 (a) of the Countries List criteria. Committee members all felt that Scarborough meets the rules that were in place when the petition for a new country status was received. Further, they concluded that it meets the definition of an island under the UN Law of the Sea Conventions. China claims Scarborough, and there is an absence of other territorial claims. Finally, it is more than 225 miles from the nearest part (island) of China.

Awards Committee Chair, Chuck Hutchinson K8CH shared the results with DXAC Chair, Garth Hamilton VE3HO, immediately after the vote. As announced in a 30 June 1995 news release, the DXAC voted nine to seven against recommending the addition of Scarborough to the DXCC countries list.

Under procedures established by the ARRL Board, and because the Chairs are unable to effect a compromise, there is an automatic appeal. In the next step, the two committees will report the reasons for their votes to the MSC for recommendation to the full Board, which ultimately will decide the matter.

The Membership Services Committee of the ARRL Board of Directors will ask Garth Hamilton VE3HO, Chairman of the DX Advisory Committee (DXAC) to waive the DXAC's internal two-year limit on re-voting petitions in the case of Pratas BV9. This would allow an immediate re-vote. Earlier this year, the DXAC voted eight to seven against adding Pratas to the DXCC Countries List, based on the now-discounted report of intervening rocks.

The Awards Committee size has been reduced to six members, being K8CH (Chair), KR1R (contest manager), K5FUV (DXCC manager), NX1L, N6BV and KH1HY. While it may seem strange to have an even number of members, in most cases an odd number of members will vote, as the DXCC manager does not vote on DXCC matters and the contest manager does not vote on contest issues.

The DXAC rejected a new-country status for Palestine based on insufficient evidence that Palestine met the DXCC country criteria.

The DXAC may also reconsider the wording of the minimum size rule, possibly eliminating the "ability to sustain human habitation" phrase. The DXAC may also consider whether there is evidence that Mt Athos SV/A prohibits amateur radio, leading to a possible deletion.

Heard Island — VK0

Following my notes on Heard Island (see *Amateur Radio*, August 1995), Ken Matchett VK3TL, the curator of the WIA national collection of QSL cards, was kind enough to send me a list of the Heard Island QSL cards which are held in the collection.

The following list contains the date of activity, the callsign used, name of the operator and/or the home call if known.

Jan 1948, VK3ACD/"In the Antarctic", A Campbell-Drury; Feb-Aug 1949, VK1VU, Ronald O F Oatt; July — Sept 1949, VK1RA, Robert W Allison, Aug — Sep 1949, VK1FE, Arthur R Burton; Jul — Nov 1950, VK1HV, Michael Harry Vause; May — Dec 1950, VK1YG, Leo; Sep — Nov 1950, VK1PG, John H Gore (VK2PG), Aug — Oct 1951, VK1NL, Nils Leids (VK2EG); Oct — Nov 1952, VK1PN, Alan M Perriman; Jul — Aug 1954 and Jan 1955, VK1DY, George E Delahoy (VK3ADZ); Feb 1963, VK0NL (see VK1NL above), Nils Leids (VK2EG); Mar 1969, VK0WR, Bill Rohrer (W7ZFY) and Henry Roering (WB4HWP); Dec 1969 — Feb 1970, VK0HM and AX0HM, Hugh Milburn (WA6EAM); Mar 1980, VK0RM, Bob McNamara Co Veenstra, Undated, VK0SJ, Sjoerd Jongens (VK7ZSJ); Jan — Feb 1983, VK0HI, David Shaw (VK3DHF) and Al Fisher (K8CW); Feb 1983, VK0NL, Kirsti Kenkins-Smith (VK9NL) and VK0JS, Jim B Smith (VK9NS), Oct — Nov 1985, VI0CC, Colin Christiansen (VK2BCC); Dec 1986 — Jan 1987, VK0DA, Frank O'Rourke; Dec 1987, VK0HI, David Shaw (VK3DHF).

I am sure that those who are interested in the history of amateur radio on Heard Island will find the above list interesting.

Future DX Activity

- Pentti OH3TY will be active from OH0 Aland Island before and during the VK-ZL-O contest on 20, 40 and 80 metres. QSL to home call.
- 8Q7BY will be operational from the Maldive Islands starting 26 Sep. It is assumed that he will be active on all bands but, if you need him on 40 metres, look around 7047 kHz at 1900 UTC. QSL to JA0BYS.
- Hazel TN7OT is often heard on the ANZA net, 14164 kHz, around 0500 UTC. QSL to home call AL7OT Hazel C Schofield, HC 1 Box, 156 T, Soldotna, Alaska AK 99669 USA. Be Patient.

COM-AN-TENA

(formerly A. J & J Coman Antennas)

6M std 6 ele 40 mm boom	$216
2M co/linear 2 5/8 7dbd	$ 97
12 ele 2M broad B/width	$135
160M vert top loaded	$327
6 M co/lin 6 dbd rad 4.NEW	$157
6 ele 6 M N.B.S 50 mm Boom	$310
Duo 10-15 M	$295
3 ele 15 M	$199
3 ele 20 M	$333
20 m log-yag array 11.5 dbd	$755
M B Vert NO TRAPS 10-80 M	$275
Tri band beam HB 35 C 5 ele	$690
40 M linear loaded 2 ele	$516
13-30 M logperiodic 7 ele 7-V Boom all stainless/steel fittings	$730
70 cm beam 33 ele 19 9 Dbi	$228
23 cm slot fed 36 ele brass cons s/solder-assembled 18 dbd	$170
80 m top load/cap/hat vert.	$260
80 m rotable dipole lin/loaded	CALL
2 m 144.100 2.2 wavelength boom	$145

PLUS FREIGHT

BANKCARD MASTERCARD & VISA ACCEPTED

Call ANDY COMAN VK3WH.

LOT 6 WEBSTERS ROAD, CLARKFIELD 3429

PHONE 054 285 134

- Selim OE6EEG cancelled the trip to Tunisia which was to have taken place from 3 to 17 August. Instead, a large group of amateurs will go there in September. In the meantime, a variety of guest operators have activated 3V8BB and QSL routes vary according to instructions given by each operator. It was also reported that logs for the period 14 January to 29 April 1995 were lost in the mail and contact with 3V8BB cannot be verified for that period.
- Joe G3MRC will be returning to Zaire. He will be active as 9Q5MRC and, when visiting Burundi, he hopes to activate 9U5MRC. QSL to home call.
- Tom AL7EL will be active from Wake Island in late October as KH9/AL7EL.
- TT8NU in Chad is operating almost daily on 17, 20 and 30 metre CW. QSL to F6FNU.
- Michael F5IBZ is in Kenya for 18 months and is now operating under the call 5Z4BZ.
- Nikolay UA0FM is now active in Vietnam as 3W5FM on 7065, 14195, and 21400 kHz on SSB; and 3505, 7007, 10105, 14025, 18075, 21025 and 28025 kHz on CW. QSL via his daughter at a new address: Nataly Stchelokov UA0FFM/3, PO Box 66, Vladimir, 600011, Russia.
- 7P8SR is active from Lesotho until about Dec 1995, when he goes to Madagascar.
- SI1GM, a Swedish special event station celebrating Marconi's birthday and 100 years of radio, will be active from 1 Sept to 30 Nov 1995. QSL via the Swedish QSL bureau.
- 8J9WGC is the special callsign of the station set up in Sabae, Japan, the site of the 1995 World Gymnastics Championships from 1 October to 10 October. All bands, all modes. Do not send a QSL card. JARL will send you the QSL card automatically for the QSO. You are invited to send encouraging messages to participating Australian gymnasts for delivery to them.

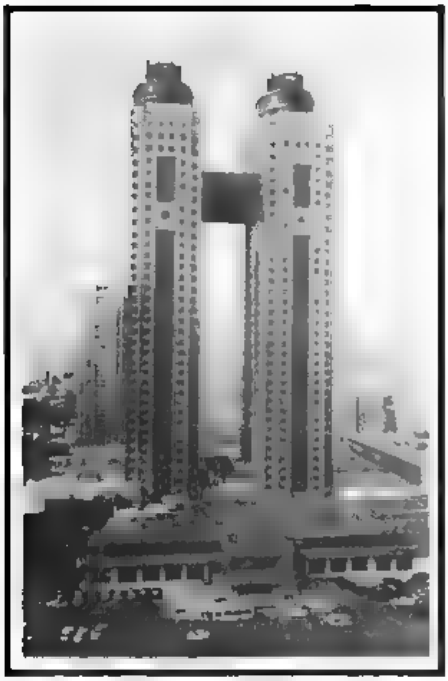
Interesting QSOs and QSL Information

- VR2GY — Lee — 14005 — CW — 0606 — July (E). QSL via the QSL Bureau.
- ZK1PN — Paul — 7010 — CW — 1130 — Aug (E). QSL to OH5UQ Paavo Miettinen, Jukankatu 4 B 16, SF-551000, Imatra 10, Finland
- UA3YH/KC4 — Nick 7015 — CW — 1150 — Aug (E). QSL to UA3XBY Serge V Satyr, Lenina 12/4-40, 249020, Ubninsk, Russia.
- 9G1SB — Sewell — 14164 — SSB — 0714 — Aug (E). QSL to Sewell T Brewer, PO Box M114, Accra, Ghana, Africa.
- YS1SC — Jose — 7045 — SSB — 0726 — Aug (E). QSL to Jose Ricardo Sandoval Campos, PO Box 4, San Salvador, El Salvador, Central America or via W6RKP.
- TI9JJP — Jose — 7064 — SSB — 0546 — Aug (E). QSL to Jose Pastora, PO Box 330-1000, San Jose, Costa Rica, Central America.
- TU2ZR — Allan — 7047 — SSB — 0648 — Aug (E). QSL to SM3DMP, Thomas Rylander, Berg 1980, S-87052, Nyland, Sweden.
- FY5YE — 7004 — CW — 0633 — Aug (E). QSL to W5JLU Leonard N Barett, 1321 Lamar Ave, Nederland, TX 77627, USA.
- KG9N/C6A — Chuck — 7016 — CW — 1053 — Aug (E). QSL to KG9N Chuck van Hoorn, 40 Maple RR1, Box 82, Congerville, IL-61729, USA.
- 3V8BB — Osamu — 14243 — SSB — 0633 — Aug (E). QSL to JF2EZA Kohichi Oguri, 4-81-46 Hirano, Tajimi, Gifu, 507, Japan.
- YJ8AM — "Mac" — 14214 — SSB — 0633 — Aug (E). QSL to Andrew "Mac" McIntyre, PO Box 743, Port Vila, Republic of Vanuatu.
- 5W1MH — Martin — 14164 — SSB — 0541 — Aug (E). QSL to PO Box 1084 Apia, Western Samoa, Southern Pacific.

From Here There and Everywhere

- Jim VK9NS passed through Sydney on his way to Europe. He will attend the RSGB International HF Convention early in September. Then he will go on to Sweden for another DX gathering at Karlsborg on 7-8 Oct. Finally he goes to the south, to Bologna in Italy where he will attend the IOTA Convention organised by the Italian ARI on the weekend of 14 October. On his way to Europe Jim made a small fact finding detour from Madras, India to Port Blair, Andaman Islands (VU4), to assess the situation there. He met Many VU2JPS, did some antenna work for him and, in general, had a good look around, whilst having in depth discussions with Many.
- I received an interesting note from Frank YJ8AA. Frank says that his QSL address in the International callbook has been incorrectly listed for the past four years as PO Box 629 Vila. The present holders of PO Box 629 do not hand over the incoming mail to Frank, so any mail addressed to that old PO Box number never reaches Frank. His correct address is (QSL Bureaux and info lists please note): Frank Palmer, PO Box 6, Port Vila, Vanuatu, South Pacific. Frank also suggests that because Simon YJ8GP (PO Box 38, Port Vila) is now very busy professionally and has less time for amateur radio than before, all mail, including QSLs to other YJs should be sent to him for attention. Frank notes that for 34 years before Vanuatu's independence he ran the YJ8 QSL Bureau.
- Pentii OH0/OH3TY advised me that he will be on 3501, 7008, and 14025 kHz before and during the VK-ZL-Oceania contest with a four element quad and

On the way to Scarborough Reef, (l to r) Olli OH0XX, Wang BZ1OK, Tim KJ4VH.



Remember the P5/OH2AM activity? This is the "Koryo" hotel in the centre of Pyonyang.

verticals and he is looking forward to working many VKs and ZLs.

- Canadian amateurs will celebrate the 50th anniversary of the establishment of the United Nations with special prefixes from 28 October to 29 December with special prefixes as follows (standard prefix in brackets): XL2 (VA2), XJ3 (VA3), CJ7 (VA7), VX1 (VE1), CG2 (VE2), XM3 (VE3), XB4 (VE4), XF5 (VE5), VG6 (VE6), XM7 (VE7), VC8 (VE8), VA9 (VE9), CZ9 (VO1), CZ0 (VO2), CK9 (VY1), and CK0 (VY2).
- QSL cards come in all shapes and with a variety of illustrations. If you worked BV7FC and asked for a QSL card you received one with an "unusual" picture.
- Radio amateurs in the Cincinnati, Ohio area will celebrate the steam boat festival of 1995 Tall Stacks by activating special event stations K8SCH/TS, W8VND/TS, and W8DX/TS from 11 to 15 October. QSL to N8FU
- An international IOTA expedition is planned to active Deal Island (IOTA OC-195) in the Furneaux group between 31 January and 6 February 1996. The participants of the group are Mark VK3DO, Ed W6KCB, George VK3OO, Wim SP5DDJ, Tad VK3UX, Jack VK5CJC, Barry VK3XV, Mirek VK3DXI, Slav VK3TS and Andy VA3PL. The group has obtained various operational permits from the authorities as the island is off-limits to the general public. Further news will be available later.
- The Scarborough Reef QSL card states on the front cover that it was a "land-based operation from the People's Republic of China" and on the inside it states that "Scarborough Reef qualifies as a new DXCC country by point 2 (a) of the DXCC countries criteria. It is an island separated by more than 225 miles of open water from its parent country". Did the DXAC say something different?
- When I had the QSO with Nick UA3YH/KC4 who was located at the South Pole and worked from the US base, he reported winds at 20 km per hour but the temperature was -55° Celsius.
- If you are interested to work the many thousands of US counties, join the "Down Under County Chasers" net at 0330 UTC on 14250 kHz on Fridays, Saturdays and Sundays.
- "Mac" YJ8AM is an old hand at moving around. Previously he operated as VK2ALD, H44MA, WH6AD and he is now in Vanuatu for a longer term. He is a keen DXer and can be heard often on the ANZA net at 0500 UTC daily.
- Gray VK4OH, one of the active operators behind the mike of VI50PEACE, has reported that as at 26 August the station had made 4476 QSOs with 70 countries. The station has been on the air since 1 August and will close down on 31 October 1995.
- Louis G4OJW, ex-ST2AA, is in England and he is unlikely to return to the Sudan
- Brendan G0UCT was active from the 3V8BB club station from 8 August to 0015 UTC on 13 August, mainly on 20 metres.
- EA9UK Juan is now a silent key. Cards are now managed by EA7HDO.
- The recent CY9 operation from St Paul island made 11,600 QSOs.
- Miriam Smith KB4C, who was in charge of production and circulation of the "QRZ DX" newsletter, died suddenly on 26 July. She was the wife of Carl Smith N4AA the editor of the newsletter. In these difficult times we extend our sympathy to Carl.
- JA1UT visited Myanmar on 31 July/1 August to demonstrate SSTV and RTTY. He was in company with G3NOM and they were active as XY1HT on 20 metres SSTV, RTTY on 15 metres and CW on 20 metres. They made 154 QSOs from the office of the Tourist department.
- Dick N7RO says the HZ1HZ logs between October 1994 and May 1995 have gone missing and he is unable to answer QSLs until they are found.
- Jean Jacques FB1LYF (ex-J28CW) will be on Kerguien for a year starting November.
- Jose TI9JJP will be active for the second time from Cocos Island from 4 October until 20 October.

QSLs Received

HP1XVH (6 m op); LA0CX (2 w op); OH0XX/DU1 (3 w op); BS7H9 (3 w JA1BK); 6Y5HN (3 m op); ZK3RW (1 m ZL1AMO); 5W0XC (4 w JE1DXC); T20XC (4 w JE1DXC); 3D2XC/P (4 w JE1DXC).

Thankyou

This column was made possible with the help of many people to whom I say many thanks, but especially to VK2FH, VK2CJH, VK2KFU, VK2SKY, VK2TJF, VK3TL, VK3UX, VK4MZ, VK4OH, VK4UA, VK9NS, OH3TY, OH0XX/DU1, YJ8AA, and W8DZ; and the following sources and publications, *IPS Radio and Space Services, QRZ DX, The DX Bulletin, The DX News Sheet*, and DX Enterprises, publishers of the *"GOLIST"* QSL managers list.

73 and good DX.

PO Box 93, Dural NSW 2158

ar

For All Your Requirements

AUTHORISED DEALER FOR:

KENWOOD

ICOM

Amateur ■ Commercial Marine Communications

Tower

Shop 3, 443 Albany Highway,
Victoria Park, WA 6100.
Telephone (09) 470 1118
Facsimile (09) 472 3795

Regulation of On-Line Information Services and the Amateur Packet Network

The WIA is seeking participation in the development of government self-regulation guidelines and practices for computer bulletin board systems.

Public concern over the content of information available on public computer bulletin board systems (BBSs) and "on-line" services such as the Internet, accessed by modem through the telephone network, caused the federal government to institute a study on the subject. Concern encompassed the use of such services for criminal purposes, the posting of defamatory statements and bulletins, and the provision of pornographic material. The Department of Communications and the Arts set up a Task Force in 1994 to look at the regulation of computer BBSs. The Task Force published a report in October 1994.

This report was considered by Commonwealth, State and Territory censorship ministers, who requested that there be further public consultation. The Task Force issued an 11-page public consultation paper on 7 July 1995, with a closing date for comment of 1 September 1995.

A number of radio amateurs provided significant input to the Task Force during the drafting of the consultation paper. The paper defined an "on-line information service" as: *a system of stored information accessed by computer through the use of a telecommunications network which allows bi-directional transfer of files or messages between the user and the system.*

Clearly, that includes amateur packet radio BBSs and the amateur radio packet network in Australia. Following requests from a number of amateur packet BBS system operators (sysops), the WIA responded to the Department of Communication and the Arts with a submission to the Department of Communications and the Arts.

The Regulation of On-Line Information Services consultation paper detailed seven terms of reference, commented on possible offences, and outlined the definitions of objectionable and restricted material and material classified under censorship laws. The paper proposed a strategy for self-regulation which included a code of practice and a complaints handling procedure, an education strategy and the introduction of offence provisions to provide sanctions against people deliberately breaching community standards.

The WIA's submission in response to the paper on Regulation of On-Line Information Services was drafted by Grant Willis VK5ZWI following consultation with the WIA state Divisions, the SMA Liaison Team, the Federal Technical Advisory Committee, packet radio groups and individual amateurs from around Australia.

The submission briefly explained the hobby of amateur radio, the role of the WIA, amateur packet radio operation and the amateur packet BBS network, endorsed the proposals outlined in the paper and sought participation in further developments.

The WIA's submission recognised that the definition of an on-line information service was applicable to the amateur radio packet BBS service, addressed the Task Force paper's regulation proposals, and said: . . . *the self-regulatory approaches presented and the proposals for handling offences is seen as a positive step to addressing the concerns of the community at large as well as those of the operators of on-line information systems.*

Support for the education strategy as a means to inform people about on-line information services and ways to address possible problems was also expressed in the WIA submission. While explaining that the Amateur Radio Service operated within a self-regulatory framework, the WIA submission sought a consultative role for the WIA in the preparation of any voluntary codes of practice, as well as participation on any proposed complaints handling agency. In addition, it was pointed out that Australian amateur packet radio operators had been involved in and supported the preparation, writing and implementation of a basic code of packet radio practice, which had been effected through the WIA working in conjunction with the International Amateur Radio Union (IARU).

A practice of self-regulation regarding content on the amateur packet radio network already existed, the WIA submission pointed out, including some monitoring of traffic content and removal of material. The *Radiocommunications Act 1992* and Regulations already apply restrictions, which the WIA submission highlighted. Section 108 prohibits operation of an amateur transmitter which would . . . *cause reasonable persons, justifiably in all the circumstances, to be seriously alarmed or seriously affronted . . . or for the purpose of harassing a person.* Paragraph 9 of the Regulations prohibit an amateur transmitting advertisements or entertainment.

While the On-Line Information Services paper covered the question of defamatory material appearing on on-line systems, there remains no means of "quarantining" BBS sysops from legal action under state defamation laws, unfortunately. The WIA is addressing this question separately in an effort to formulate guidance for packet radio BBS operators and sysops.

FTAC Notes

*John Martin VK3KWA, Chairman, Federal Technical Advisory Committee**

1996 Call Book

Thanks to the following amateurs for supplying updated beacon and repeater information for the new Call Book: VK1BG, VK2BZ, VJ2R (eh?), VK2MT, VK2TGX, VK2XZP, VK2ZTM, VK3PC, VK3YF, VK5ZWI, VK6UU, VK7YSH, plus two others who sent in unsigned update sheets (and anyone else I have forgotten to mention).

80 and 40 Metre Band Plans — Digital Modes

The SMA has granted digital mode privileges to Novices on 80 and 10 metres. On 80 metres, the Novice segment overlaps the band plan digital modes segment by only 5 kHz (3620 — 3625 kHz). These new licence conditions raise the question of whether the band plan will need to be changed.

In favour of a change is the fact that 5 kHz may not be enough for Novice digital operation, and the idea that it would be more logical if the 80 metre digital segment followed the pattern of most other bands and was immediately above the CW segment, say at 3535 — 3550 kHz.

Arguments against a change would be that:

1. moving the digital segment would eat into spectrum space that is more heavily populated than the existing digital modes segment; and
2. it would inevitably lead to more SSB operation within the digital segment than there is now.

A compromise solution could be to move the digital modes segment down to 3615 — 3635 kHz. The net effect on Full and Intermediate licensees would be zero. However, all Novices would lose 5 kHz of SSB space so that some could use that space for RTTY or packet

It will be impossible to find a solution that pleases everyone. Any comments would be appreciated.

The other question is the 40 metre digital modes segment, which is only 7030 — 7040 kHz. This is very narrow and does not overlap the Region I segment, which begins at 7040 kHz. Anyone wishing to work into Region I therefore must ignore the band plan.

I feel that it would be only fair to extend the digital modes segment, but the question is how far Extension to 7045 kHz would be the minimum needed. Going any further — say to 7050 kHz — would be great for the digital people but may not be popular with SSB operators. Comments please.

Linear Translators

Continuing the discussion of recent band plan changes, we turn to linear translators. On 2 metres, three frequency pairs have been set aside for linear translators: 144.625/145.225, 144.650/145.250, and 144.675/145.275 MHz. Segments have also been set aside beginning at 432.6, 1270.6, 1296.6 MHz and on all higher bands up to 10 GHz.

Linear translators are devices which translate the entire received passband "as is" to the output frequency range. For this reason they can handle all modes, including SSB and CW, in the same way as satellite transponders.

Linear translators use SSB-type IF strips and therefore have greater sensitivity than FM repeaters. They also have far better spectrum efficiency: a linear translator could handle six or eight SSB contacts in the same bandwidth occupied by a single FM signal. The penalty is that the IF circuitry is more complex, mainly because an effective AGC system is needed to limit the dynamic range of the drive applied to the transmitter. A noise squelch is also needed to prevent the translator from radiating wideband noise in the absence of a received signal.

Linear translators may be inband or crossband. The band plans do not recommend inband translators, especially on two metres. They could save spectrum space but only if their use was confined to CW or SSB. It would be virtually impossible to prevent them from being used as de facto FM repeaters, which would be "no go" on frequencies below 146 MHz.

Crossband translators could help populate the higher bands and provide test signals which could be switched on by transmitting a signal anywhere within the input passband. Anyone scanning the output passband could be alerted to the presence of DX signals on the input Satellite operators could use crossband translators to test their equipment, or to get extra value from it by making terrestrial contacts.

Two linear translators have been in operation in New Zealand for many years, and some in the USA, but nothing has been done in Australia. Maybe it is time to get moving!

Information Beacons

An "information beacon" is a transmitter that automatically sends out information such as telemetry or recorded speech. One use would be for radio clubs to provide recorded information for visitors to their town. A digital speech store with a two minute memory would be ideal for this. The beacon could transmit continuously or be triggered by reception of a short burst of carrier on its frequency.

Other features could be added; for example, a voice synthesiser which could announce the time, temperature and barometric pressure. Another possibility would be an automated frequency checker. Transmit a short burst of carrier and a voice would respond with "Your frequency is 300 Hz high", or whatever.

The two metre band plan now includes a recommended frequency of 145.575 MHz for information beacons. It is suggested that this channel be used throughout Australia for local area information beacons such as the club beacons suggested above.

*PO Box 2175, Caulfield Junction, VIC 3161

Novice Notes

*Peter Parker VK1PK**

A VHF/UHF Primer (or, what your black box's instruction manual doesn't tell you)

The creation of the new Novice Limited licence, and the expansion of Novice privileges to include digital modes and 70 cm operation, means that there will be more activity than ever before on the frequencies above 50 MHz. These Notes seek to answer the questions that many newcomers may have on amateur VHF/UHF operation. Although the VHF/UHF bands support a wide range of operating interests, such as amateur television, satellite activity, long-distance SSB operation, moonbounce (EME) and packet radio, this article focuses on FM voice operation (note 1).

Propagation

Unlike shortwave (HF) bands, which are good for world-wide radio communication, the VHF frequencies are best at providing reliable coverage of local areas. Depending on factors, such as your location and antenna height, distances of

between about 25 and 100 kilometres can be readily covered with modest power and simple antennas. While not quite "line-of-sight", VHF/UHF signals are attenuated (reduced in strength) by obstructions such as city buildings and hills. This means that stations operating at higher altitudes are likely to have stronger signals than those transmitting from valleys. You will find that seventy centimetres provides similar coverage to UHF CB equipment, while two metres often permits slightly longer distances to be covered.

While there are some differences between daytime and night time radio conditions on VHF/UHF, they are far less marked than the variations experienced on HF bands such as 80 metres. The furthest distances on VHF/UHF are usually covered either early in the morning, or after dusk. At these times (particularly in the summer), tropospheric ducting can extend your transmitting range to several hundred kilometres. This means that you will be able to talk beyond your local area, and reach distant repeaters. VHF/UHF propagation is influenced by weather conditions. For example, inversions in the troposphere give rise to long distance VHF/UHF contacts. During these occasions, the difference between VHF and UHF can be quite marked, and there are times when long distances can be spanned on 70 cm, but not on 2 metres.

Equipment

A wide range of equipment is available for the VHF/UHF FM operator. Because of the popularity of two metres there is more VHF equipment around. In some areas, seventy centimetre activity is sparse, and few repeaters exist. If you live in the country, or are on a limited budget, I'd suggest that two metres be chosen as your first band.

The cheapest way to get on air is to purchase second-hand equipment. Solid-state equipment is preferred; the old transceivers with valve finals are heavy, bulky and consume a lot of power. Used VHF/UHF gear falls into two main categories, crystal controlled or frequency synthesised. Older crystal-controlled amateur or modified commercial rigs can be had from anywhere between a few dollars and $100-150 at hamfests and radio junk sales. Depending on your operating habits, the purchase of such equipment, restricted to a few frequencies, can represent false economy. For the price of a few pairs of crystals, a second-hand synthesised transceiver may be a wiser choice. However, if a set that you are considering is in good order, cheap and includes the repeater and simplex frequencies used in your area, it may represent a sound buy, especially if you seldom travel.

The more technically inclined could obtain a used VHF high band or UHF ex-commercial FM two way radio, and convert it to the amateur bands. The crystals are the main cost of such projects. Suitable transceivers can be bought for a song at hamfests and junk sales. Ensure that any set you buy operates adjacent to the amateur band to which you wish to convert it. Converting a 70-85 MHz VHF low-band radio to two metres is possible, but not simple. Because the commercial VHF high band (148 — 174 MHz) is so close to 146 MHz, conversion of these sets is simple. All one needs to do is to plug in appropriate crystals, and adjust several tuned circuits inside the transceiver. Radios suitable for conversion to two metres include the Philips FM828, FM1680, and the STC151. All of these are crystal-locked, but newer synthesised sets (such as the Philips FM92) can also be converted.

Those intending to modify sets should know what they are doing, possess a schematic diagram, and have suitable test equipment when performing the operation. This is because excessive twiddling of internal trimmer capacitors and coil slugs can break them. Replacements are sometimes hard to come by.

Assuming you have a little spare cash, you may choose gear made especially for the amateur market. Most of this is synthesised, and you can choose between a handheld or mobile unit. Several models cover both the two metre and seventy centimetre bands. Apart from this difference, most radios do pretty much the same thing, and many features are not really necessary. If travelling overseas, resist the temptation to buy amateur gear there. It may not cover Australian frequencies, and after-sales service may not be available.

Whether to buy a handheld or mobile transceiver is up to you. Handheld equipment may have poor receivers (particularly apparent in inner-city areas near pager transmitters) and the inbuilt nicad battery packs often flatten mid-QSO. The small antennas supplied with handheld transceivers are normally quite inefficient. On the other hand, various accessories such as speaker-microphones, larger battery packs and antennas can make the hand-held suitable for both home and mobile operation

Mobile transceivers are capable of greater power output, and are good for home station operation in conjunction with a 13.8 volt power supply and outdoor antenna. While most operate FM only, some include SSB and CW capabilities. If you wish to use amateur satellites, or experiment with long-distance SSB operation, a multi-mode transceiver should be seriously considered.

Purchasing Equipment

A look through *Amateur Radio's* Hamads section for the first seven months of this year revealed the figures shown in Table 1 regarding second hand VHF/UHF FM transceiver prices and availability.

These prices are a guide only, as the sample taken was not large enough to be statistically significant. They refer to synthesised transceivers only. Only those advertisements specifying a price for the equipment on offer were included in this survey. When buying second hand gear, insist on receiving the manual with your purchase and, where possible, ask for it to be demonstrated.

The WIA maintains a stolen equipment register. This register lists the serial numbers of stolen amateur equipment, and is published periodically. It should be consulted if you have any doubts about equipment you are intending to purchase. New transceivers are typically 50 to 100 percent dearer than the prices quoted below.

New and used amateur equipment is obtainable from *Amateur Radio* advertisers, private sellers (see Hamads), and from junk sales or hamfests. Your weekly Divisional broadcast may include "Buy and Sell" or "Disposals" segments for second hand gear. Membership of a local radio club is another way you can get to know about equipment for sale in your area

Antennas

The quality and performance of your antenna system is critical if you wish to do other than talk through local repeaters (which can get a bit boring after a while). It is not hard to build an antenna, and experimentation with them is highly recommended. As VHF/UHF antennas

Transceiver Type	Number for Sale	Range of Prices	Avg Price
2 metre mobile	7	$150 — 450	$290
2 metre handheld	18	$195 — 450	$300
70 cm mobile	1	$280	
70 cm handheld	2	$215 — 350	$280
Dual band mobile	3	$650 — 900	$820
Dual band handheld	2	$500 — 850	$680

Table 1 — Second hand VHF/UHF FM transceiver prices.

are much smaller than those for 27 MHz CB, they are cheaper and easier to erect. As with UHF CB, vertical antenna polarisation is the norm for amateur FM operations.

While many operate handheld transceivers inside vehicles with no external antenna, operating range will improve with an antenna on the car roof. The most popular mobile antennas for two metres are 1/4 and 5/8 wavelength whips, preferably mounted in the centre of the roof. The longer antenna will normally deliver the better performance, but this may be short-lived; the low clearance of garage doors and multi-storey car parks are very good at damaging them!

Seventy centimetre antennas are shorter, and some provide appreciable gain over a dipole. It is not necessary to drill holes to mount a mobile antenna; a wide range of mounting hardware and magnetic bases is available. Mobile antennas may either be purchased or home made.

The performance of handheld transceivers can also be enhanced by adding a better antenna. A range of proprietary types is available, but they tend to be dearer than home-made devices. An example of an antenna, able to be used with a handheld transceiver when extended range is required, appeared in *Amateur Radio* a few months ago (note 2).

For most home stations, a 1/4 or 5/8 wave groundplane antenna will provide adequate onmi-directional coverage for both repeater and simplex operation. While it should be mounted as high as possible, attention should be paid to feedline losses, which increase with frequency. A loss of three decibels means that half the transmitter's power output never makes it to the antenna. Thinner coaxial cable (such as RG58) has more loss than thicker cables (RG8, RG213). While RG58 is acceptable for short cable runs on two metres, its use on 70 centimetres would be unwise unless you are prepared to live with substantial losses and reduced station performance.

Constructional information on VHF/UHF antennas can be found in the *ARRL Handbook*. A simple groundplane for two metres was described in a previous issue of *Amateur Radio* (note 3). When building antennas, observe safety precautions, such as not erecting them near power lines. To prevent corrosion at the antenna, dissimilar metals must not be in contact with each other. This is to ensure antenna longevity, and to reduce the risk of harmonics being radiated. Moisture should be prevented from entering the coaxial feedline. Waterproofing at the antenna feedpoint is essential, and various tapes and sealants are available for the job.

Repeaters

A lot of amateur (and CB) VHF/UHF communication takes place through repeater stations. Amateur repeaters consist of a receiver, transmitter, filters, and antenna. They are normally on hill tops. Repeaters receive a signal (often from a mobile or hand-held transceiver), and retransmit it on an adjacent frequency, so it can be heard over a much wider area. This means that with low power and compact antennas it is possible to communicate with people up to 100 to 150 km away, provided that you are within the service area of your local repeater. Figure 1 shows a case where two stations, unable to hear each other directly, can communicate, thanks to the existence of a repeater.

Repeaters are constructed and maintained by volunteers. If you intend using them, consider joining the local radio club, repeater group or WIA Division. *The WIA Callbook* provides a listing of all amateur repeaters in Australia, the clubs/groups that erect them, and the repeater frequencies. It is a useful reference, and every active amateur should have one.

Bandplans

To promote orderly usage of amateur bands, bandplans which set aside frequencies for various modes and uses have been developed. They are important to the Novice, as contacts will not be made if you are transmitting on the wrong frequencies. The bandplans presented here (figure 2) have been reproduced from the *WIA Callbook*.

Both two metres and seventy centimetres are divided into channels. These are at 25 kilohertz intervals, again like UHF CB. To make things confusing, several different channel numbering systems are in use; for instance, a repeater transmitting on 146.900 MHz could be referred to as "6900" or "channel 6". The former convention is more common in most areas.

Operating

Conversations (QSOs) can be initiated either directly on a simplex frequency (eg 146.500, 439.000 MHz), or via a repeater. In most places you have a better chance of success by calling on a repeater. Do check that the frequency offset is switched in and correct for the repeater you intend using; some use offsets different to those specified in the bandplan.

Assuming that the repeater is free, you may either call CQ, or announce that you are listening. Though procedures vary between states, the former is suggested as it corresponds to standard practice on other bands, and more clearly announces your intention (ie you want a contact!).

An effective means of making contacts is to call people immediately after a conversation has ended. Alternatively, you could break in to a QSO still in progress. This is permissible if you have something to contribute to the discussion, or just want a quick signal report, but it is probably wise not to make it a frequent habit.

Once contact has been established on a repeater, it is courteous to move to a simplex frequency if possible. This makes the repeater available to those unable to do so. Another reason why simplex operation is preferred is that repeaters have time-outs, so you could find yourself cut off if you enjoy long overs on repeaters.

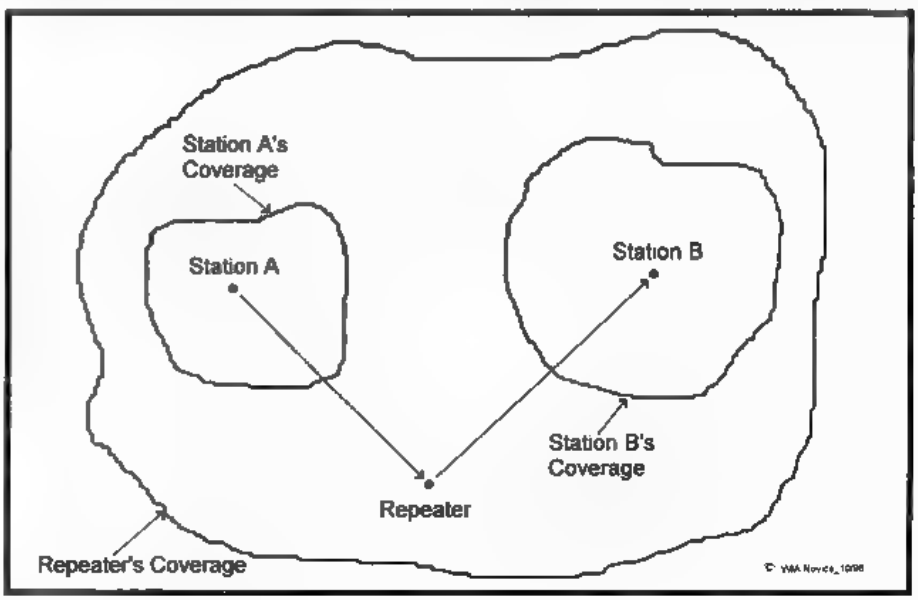


Figure 1 — The enhanced coverage provided by a repeater.

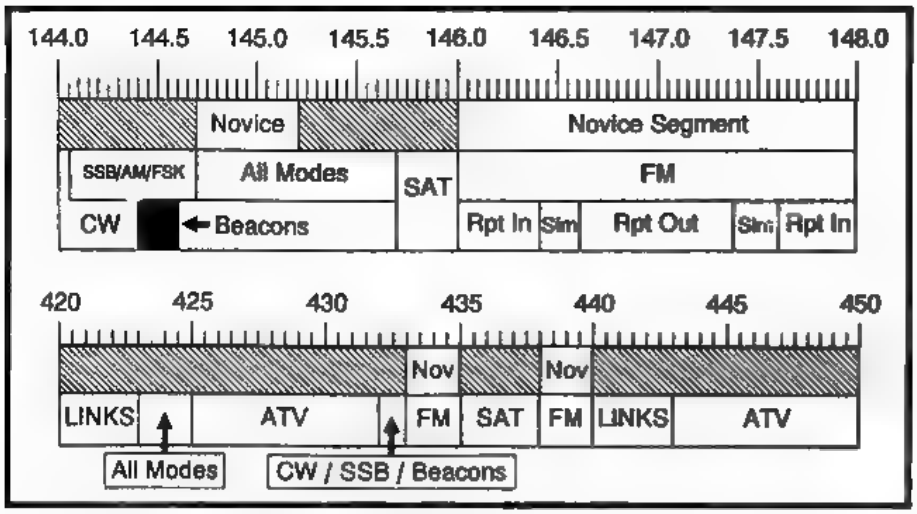


Figure 2 — Band Plans for two metres (144.0 to 148.0 MHz) and seventy centimetres (420 to 450 MHz).

During the contact, bear in mind that there are topics that should not be discussed on air. These include religion, politics and matters involving financial gain. Those with more than one amateur in the family should take special care; announcing on the local repeater that "the key is just under the doormat" is asking for trouble. Criminals have scanners, and your address is in the callbook!

Don't be too disheartened if few respond to your calls. Although many monitor repeaters, comparatively few actually talk. A lot of amateurs do nothing other than talk to their narrow circle of mates. You will notice many little groups congregating on various frequencies, particularly in the larger cities. In the country, there are fewer amateurs, so this tendency is less apparent. Though there are still a few pockets of anti-Novice sentiment around, those who harbour such feelings are gradually dying off.

Despite the preceding comments, you will find that most amateurs you contact are courteous and helpful, though many are initially reticent in coming forward and picking up the microphone to talk to a new callsign. To get to know some of these people, it is recommended that you join a local radio club and participate in some of their activities.

After an initial flurry of activity, one's enthusiasm for local FM operating (particularly through repeaters) can quickly dissipate. Fortunately, even within the conditions of the Novice Limited licence, there is scope for a range of activities including packet radio, antenna construction, repeater DXing, contesting, QRP, fox-hunting, portable operation and homebrewing. Books on most of these topics are available from your local WIA Division. Participation in one or more of these facets of our hobby can be highly rewarding. The practical experience gained will also make it much easier to move to a higher grade of licence, as your interest develops.

That's all for this month. Any questions can be sent to me at either of the addresses below.

Notes

1. *Information on other VHF/UHF activities appear in the following Amateur Radio columns: VHF/UHF — An Expanding World, Repeater Link, AMSAT Australia and Packet World.*
2. *See Amateur Radio, July 1995, page 10.*
3. *Amateur Radio, July 1988 "Two Metres for the Newcomer", Ron Cook VK3AFW.*

**7/1 Garran Place, Garran ACT 2605*
VK1PK @ VK1KCM.ACT.AUS.OC

Spotlight on SWLing

*Robin L. Harwood VK7RH**

Well, spring is well and truly upon us now and it is being reflected on the bands with the higher frequencies becoming audible in the early evenings. Europe and North America have reverted to Standard Time, whilst the UK will revert to GMT on 15 October. A reminder that Tasmania went on to Summer Time on 1 October, which will put it one hour ahead of NSW, Victoria and Queensland, the southern states who have opted for Summer Time change over on the last Sunday in October. Fortunately, all the southern states have synchronised the date when they go back to Standard Time which will be the last Sunday in March. New Zealand will be on Summer Time from 8 October until the second Sunday in March 1996.

The endless cycle of violence and ethnic cleansing in the former Yugoslavia shows no signs of abating. When Croatia went into the Serbian enclave of Kryenia and expelled hundreds of thousands of its Serbian citizens, it created a huge vacuum in information on the status of displaced families in this forced migration. This ethnic cleansing was going on in both directions, with the Serbs expelling an equal number of Croats from both Bosnian Serb positions and from Serbia proper. The VOA in Washington DC added a phone-in facility to both its Serbian and Croatian language services, where short messages could be deposited for later airing. Both the VOA and the BBC World Service have been extending their transmissions to this troubled region, particularly after the NATO bombing of Serbian positions throughout Bosnia in late August.

I believe that the UNPROFOR (United Nations Protection Force in Bosnia) mainly conduct their traffic between 3.7 and 3.9 MHz and have been heard in Tasmania just before our local sunrise. Both SSB and digital modes are employed. Frequencies vary daily and they seem to be aware that all parties to the conflict are able to monitor what is transpiring, hence the need for this frequency hopping. Comms are reportedly between Split, Zagreb and Sarajevo. 75/80 metres is not an exclusive amateur allocation in Region 1.

Bosnian Radio has been reportedly heard in Europe on 7105 kHz, broadcasting from Sarajevo, but is moving about as the channel is rather crowded with other external services such as the BBC and Monte Carlo. It is also only a low powered sender

The Croatian Radio in Zagreb is still heard within Europe but not as frequently in this hemisphere. The channel of 13,830 kHz is infrequently heard. There used to be a five minute news bulletin in English at five minutes past the hour, but I haven't observed it recently.

The voice of Yugoslavia used to be heard in English to North America on 11,870 kHz here at 0430 UTC but, as the senders were reportedly located in Bosnia

and not in Serbia proper, I have been wondering whether they may have been destroyed in the NATO bombardment, as they were not heard in the last week in August.

I recently received a sample copy of the Newsletter of the South Pacific Union of DXers (SPUD) based in Melbourne. There are many well-known DXers associated with it, with a wealth of experience. The contents of the Newsletter are friendly and well written, but I think that a magnifying glass may be needed as the print is small. However, my eyesight may be lacking as it does depend on the lighting. The subscription is $30 per annum. Enquiries can be directed to David Diamond, the membership secretary, at PO Box 68, Sassafras VIC 3787. The postal address for SPUD Inc is PO Box 293, Coburg VIC 3058. It should be pointed out that SPUD isn't affiliated with any other club or organisation and is an independent group of DXers throughout the South Pacific.

With the imminent prospect of the French resuming their nuclear testing on Mururoa Atoll in Polynesia, many are tuning in to Papeete, Tahiti. It can be heard on the split frequency of 15,167 kHz but varies quite a bit up and down. Programming is in French and Polynesian and, although the carrier is strong, the modulation varies, as does the frequency. It is on the air continuously with a satellite feed from Paris during the local night time hours.

Thanks to those who informed me by e-mail that the OZ_SW echo on Fidonet is still functioning. Unfortunately, there seems to be a political problem with the Fidonet feed, which is strange but out of my control. So, I am mainly relying on my Internet feed as I've also found the Fido Netmails are unreliable. All of my correspondents have now switched over and we have determined that Internet is faster and it's reliability and scope leaves Fidonet for dead.

Just in conclusion, I have noticed a rather strong clandestine station on 7070 kHz at 1330 UTC. The language is Indian in origin and I do have suspicions that it is directed to Kashmir, judging by the Islamic chanting at the commencement of the broadcast. There is also some bubble jamming, but not as pronounced as the Mid-east jammers. Could be either in Pakistan controlled Kashmir or in Pakistan proper.

Well, that is all for this month. Until next time, the very best of listening and 73.

*52 Connaught Crescent, West Launceston TAS 7250
VK7RH@VK7BBS LTN.TAS.AUS.OC
Internet: robroy@tamarcom.com.au
Fidonet Robin.Harwood 3:670/301@fidonet.org

ar

Update

The VK4EMM Tower Delta Vertical Phased Array (TDVPA)

John Loftus VK4EMM, the author of the interesting antenna article which commenced on page 4 of the August 1995 issue of *Amateur Radio* magazine, has pointed out to us that we made an error in the **Fig 5 — Relay control unit** diagram which appeared on page 6. The 1N4007 diode appearing in the lower left of the drawing was incorrectly shown as connecting between positions 2 and 5 of SW1. It should connect between switch positions 2 and 4 as shown on the corrected Fig 5 diagram published here.

It would be a good idea to correct your copy of the August 1995 issue of *Amateur Radio* now.

Australian Amateur Packet Radio Association (AAPRA)

It has been pointed out that the ***What's New*** item on AAPRA, which appeared on page 50 of the August 1995 issue of *Amateur Radio*, gave the false impression that AAPRA was a new association. In fact, AAPRA was founded in 1983 and has been a major player in packet radio ever since, with a current membership of around 300.

AAPRA has many items available to help amateurs to become economically involved in packet radio, including modems and software. We hope that further details of what's available from AAPRA will appear in future issues of *Amateur Radio*.

ar

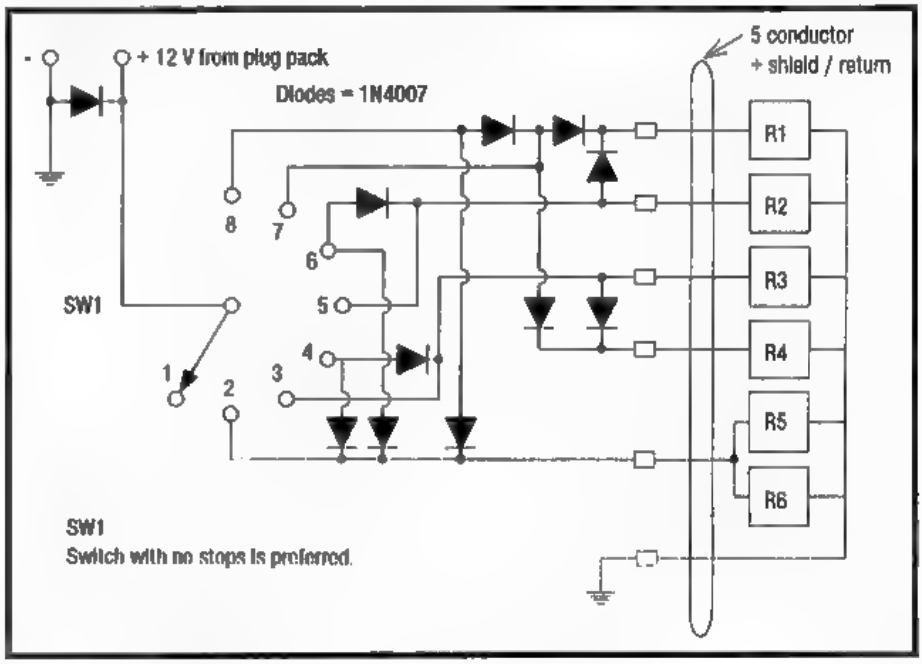


Fig 5 — Relay control unit.

Education Notes

Brenda M Edmonds VK3KT Federal Education Coordinator*

A few weeks ago I had the pleasure of renewing a friendship with Saif S21A, the President of the Bangladesh Amateur Radio League (BARL), whom I first met last year in Singapore. He and two colleagues were in Melbourne for the PC95 Computer Exhibition, so I was able to learn a lot about this most interesting country.

Bangladesh came into existence in 1971. It is a small country, about 144,000 square kilometres or 55,000 square miles, or very approximately twice the size of Tasmania. However, it has a population of about 120 million. As well as extensive primary production, it is rapidly developing technological industries.

Over the years, Saif has put a lot of time and effort into lobbying and negotiation with the authorities to allow the introduction of amateur radio into Bangladesh. Finally, about three years ago, he won the battle. He and BARL now have full Government support for their

efforts to encourage more amateur radio activity in Bangladesh.

When I met him last year he told me that the amateur population of Bangladesh stood at 8, so I was most interested to hear that there are now 15 licensed and active amateurs (including one YL) in his country, using both HF and VHF. Examinations are being conducted by BARL in conjunction with the local licensing authority, using the RSGB syllabus.

It is hard for us to accept the idea of so few amateurs in such a large population, but their low numbers are compensated by their enthusiasm and drive. BARL sent two delegates to Singapore, where Saif played an active part on one of the sub-committees. The League was only a couple of years old when it hosted the SEAnet 93 convention, which I am assured was a great success. Last year BARL nominated as host society for the 1997 IARU Region 3 Conference, but was narrowly defeated by the Chinese Radio Sports Association which will arrange the Conference in Beijing.

In a number of other South-East Asian countries, amateur radio is growing at an astounding rate. I am sure the amateur population of Bangladesh will show a similar pattern now that they have started. Keep listening for S21, and give them the encouragement they deserve.

**PO Box 445, Blackburn VIC 3130*

Pounding Brass

*Stephen P Smith VK2SPS**

During a recent QSO with a fellow amateur the great Morse debate raised its head again. My friend is very concerned about the future of amateur radio and especially those operators who exclusively use telegraphy as their means of communications. He also mentioned his belief that certain, well established organisations intend to bring this magnificent form of communications to an end and thus back-seat it for the more exotic forms of digital communications that seem to be encroaching upon our bands.

The pros and cons of telegraphy were discussed and one point we both agreed upon was that of home construction. Is this art being lost to black boxes and advancing technology? To a major extent, yes! We are losing our basic practical skills. Just think for a moment about the next generation of youngsters who will be so dependent on machines and computers to do virtually everything for them, that simple tasks of today will be almost impossible for them.

I personally believe that one learns by doing. With the required theory and practical skills, one can achieve almost anything if one really wants to.

Remember the required skills are only achieved through constant practice, practice and more practice.

Where can we acquire such skills? A good starting point is by being a member of a radio club. There you will find so much knowledge and talent that most problems encountered (whether you are a beginner or advanced operator) can quickly be overcome. Which brings me to one club in particular. This club supports telegraphy, promotes home brew construction and also something which some operators believe is quite insane, the use of low power operating (QRP).

The club I am referring to is the *CW Operators QRP Club Inc.* The club was founded by Ian Leonard O'Donnell VK5ZF, member number one, of Richmond South Australia in December 1983. Leonard was a radio technician by trade and spent most of his life servicing patients' radio systems at the Royal Adelaide Hospital. He later moved into radio paging systems.

Leonard held his amateur licence for some 47 years until he recently became a Silent Key at the age of 71. Out of respect to the memory of Leonard, his membership number one will not be reissued. *Lo-Key* is the official magazine of the CW Operators QRP Club and is

Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Why CW?

May I add a few remarks about the CW debate in VK? As a CW operator I have read many articles both for and against CW. I would like to comment on Eddie's (VK4EET) remarks about extra qualifications to operate on the top DXing bands, ie Morse code proficiency.

I am a Novice operator but have passed the American extra class CW exam. However, with this skill which I worked hard to acquire, what extra bands do I get? None!

Why keep CW a part of the licence requirement when, after all the work of getting 10 wpm for the Australian licence you get no bonus or thanks for the hard work of getting the CW requirement in the first place.

I think if a Novice can prove ability to operate a CW station at fast speeds, eg a test at 15 wpm receive and send, they should be given extra portions of the HF bands in the CW segments only.

As I see it, the amateur with a K or J callsign now gets much more of the HF bands and also power increases. This in itself proves that CW is not the important factor. When you pass the CW exam you get nothing, but for the Full call theory from Novice you get three full HF bands plus VHF/UHF/SHF and power increases.

I think for CW to continue as an interest for the young ham, a bonus for doing the CW exam is due.

Stuart Birkin VK8NSB
PO Box 205
Karama, Darwin NT 0812

Telstra's RFI MODIFIED Touchfone 200R

My HF transmissions were clearly being received on my normal Telstra Touchfone. My search for Telstra's RFI modified phone started on a Thursday. My enquiries finally (five calls later) found one of Telstra's Business Offices which had experience with the RFI Modified phone.

I received a call from a Telstra technician on the Thursday afternoon and my old Touchfone was replaced with the new RFI Modified phone on Saturday afternoon. The new phone was immediately tested with no sign of HF interference.

The RFI Modified phone looks exactly the same as the normal Touchfone and it is said to have the same facilities. On the back of the "Telecom Touchfone 200R" is a sticker stating: *RFI Modified CB, FM & TV, Austel App No C89/88/0001.*

I was advised Telstra's policy is that it will replace **one Telecom rented** phone with a RFI Modified phone at **no** charge.

Congratulations Telstra on a speedy and effective service. This information may assist a lot of amateurs where a problem is occurring with their HF transmissions getting into neighbours' phones.

Alex Stuart VK2ALX
10 Wanganella Street
Balgowlah Heights NSW 2093

edited by Don Callow VK5AtL, member number 75. The magazine is published quarterly and is posted to members in mid March, June, September and December.

The magazine contains some 32 pages of technical items on QRP and related equipment. Members are also encouraged to build their own gear Many of the articles in the magazine are written with the inexperienced builder in mind, but it also includes technical articles for the more advanced

Lo-Key also contains information on club contests and awards. You might be familiar with "scrambles" (I mentioned these some time back), which are usually held on 80 metres and are great fun to participate in. I should also mention that a handsome certificate is issued to each member who takes part in a "scramble". If you chase "wallpaper" it would make a fine addition to any shack wall.

The magazine also contains the CW Net (QRP) news, NSB "Natter Net News", articles from members, projects, modifications and a lot more. I believe the *CW Operators QRP Club* to be the only club in Australia that specialises in supporting the very satisfying combination of QRP, homebrew and CW.

Any amateur interested in becoming a member should write to Kevin Zietz VK5AKZ, 41 Tobruk Ave, St Marys SA 5042 for an application form. Membership is only $10 per year for members within Australia and slightly more for DX members.

The following quote comes from one of their magazines: *It's not the amount of dog in the fight that counts; it's the amount of fight in the dog!*

**PO Box 361, Mona Vale NSW 2103*

Repeater Link

*Will McGhie VK6UU**

Last month I promised information on a cleaver timer for switching on equipment at a repeater site, all neatly packaged at a low price and available from several sources. However, in the meantime, I received from Barry Sullivan VK2BZ some thoughts on pagers and their impact on our primary service 2 metre band. Barry has corresponded with the SMA over this issue and has received a very interesting reply from the SMA. Note that the SMA in their reply say that ITU treaty agreements are not binding and the SMA can choose not to follow ITU treaty agreements they have made. This is an important point. The next time the SMA quote ITU treaty agreements preventing a particular course of action, this reply can be quoted. What follows is from Barry VK2BZ, followed by the SMA letter to Barry.

The Situation Concerning Pager Interference to the 2 Metre Amateur Band

I am concerned about paging interference to the 2 metre amateur band. There are numerous repeaters in the band 147 to 148 MHz that are virtually unusable because of this interference.

A letter dated December 1992 from the Department of Transport and Communications appears to signify a major policy change concerning pager interference. The second last paragraph reads: *It is not practice to address the resolution of specific interference problems in RALIs (Radiocommunications Assignment and Licensing Instructions), such as LM2 on "Paging Services" beyond those solutions implied by an expectation of compliance with the specification requirements and assignment criteria laid down in the document. With this in mind, I would like to explore with you the suggestion that the WIA seek in advance, in principle agreement to explore with the (major) paging service providers allowing you to pay for the installation of notch filters and the like, should the necessity arise in the future as one of the outcomes referred to above.*

This letter and the RALI referred to meant that pagers were not required to be fitted with filters, etc as a standard condition of licence. Many had been installed without the required (by licence condition) band pass filters and were not known to cause problems (there were no 2 metre amateur repeater installations near by) and it was considered an unnecessary expense to require that filters be fitted to all paging transmitters. Reasonable? Yes, but they went too far. Now we have problems, a number of different problems, all resulting in interference to the amateur service.

I have noticed that the SMA has been inserting "no protection and no interference clauses" in repeater station licences. These clauses have been inserted as a matter of routine and not because of technical necessity. It is up to the licensee to check the issued licence for these clauses and "APPEAL" against them. With those clauses inserted you've had it if you require protection.

There are a number of options available to address the major problem and I will detail some of the more logical ones below:—

1. Vacate the band above 147 MHz and leave it to pager noise.
2. Filter 2 metre repeater receivers so that they are not susceptible to overload or receiver intermodulation by the pager transmitters.
3. Filter amateur mobile, handheld and home receivers so they are not susceptible to over load or receiver intermodulation caused by the pager transmitters.
4. Alter the 146/147 MHz section of the band to 12.5 kHz channelling and fit the 147 MHz allocations in the space made available. This would mean a re-equipment program for all 2 metre users.
5. I have looked at the amateur bandplan and am convinced that the 145 MHz section of the band should not be used for voice repeater operation.

The fair course of action I believe is that we must overcome the pager interference problem affecting the amateur 147 to 148 MHz section of the spectrum. This problem has increased in magnitude over the years and I am aware that fault is on both sides, for the following reasons:

(i) Pager transmitters are emitting high levels of out of band noise. Some particular transmitters have a separate problem of radiating noise from their power supplies.

(ii) Pager transmitters sometimes emit spurious signals which are radiated. These signals are not just noise but are products of frequency synthesis and can be tuned out or the fault rectified. The signals are below the levels to be filtered out as required by the SMA pager specification but are still a serious interference problem to adjacent 2 metre repeater receivers.

(iii) Pager transmitters are transmitting intermodulation products when their signals are combined with the transmitted signals of other on site paging transmitters. The mathematical combinations are often 2a-b = c where a = the transmitter in which the intermodulation is occurring, b = the second paging transmitter, and c = the amateur receiver An example is (148.1875 x 2) — 148.1875 = 147.9625 which is within the band pass of the receivers on 2 amateur repeater channels 147.975 and 147.950 MHz. A second combination is (148.0375 x 2) — 148.1875 = 147.8875 which affects the amateur channels 147.875 and 147.900 MHz These three paging

transmitters are found on the one tower with separate aerials on the same vertical level and only two or three metres horizontal separation. This installation can be found all over Australia. The transmitters are installed with no cavity filters or ferrite isolators between the transmitter and the aerial. Some have isolators and no cavity filters and others filters and no ferrite isolators. Ferrite isolators prevent the signal from the adjacent paging transmitter reaching the finals of the intermodulating transmitter from the aerial and via the coaxial cable. The cavity filter prevents the radiation of harmonics generated by the isolator and other stray or spurious signals which are outside the passband of the filter. These filters help remove the out of band signals which are below the (-70 dB on carrier) specification. The high transmit power of pagers makes this noise a real worry to co-sited receivers in the adjacent band. In situations where the pager aerials are all mounted on top of the same tower, and are therefore very close in the horizontal plane, the attenuation of the transmitted signal causing intermodulation to the adjacent transmitter aerial is very low. Therefore, the unwanted signal reaching the finals of the intermodulating transmitter is extremely strong. The result is the transmitted intermodulation product is often only 3 dB down on the wanted carrier. This is an observation based on numerous measurements with spectrum analysers. We must remember that if the intermodulation or spurious is outside the pager specification then the SMA has an obligation to have the paging company remove it. It is possible, though, that they will want to charge you for the investigation and, in a number of regions, you may find it difficult to have the SMA undertake the investigation at all.

(iv) Site external cross-modulation products are developed on-site but external to both transmitters and receivers. This occurs in naturally occurring diodes or non-linear junctions in fences, towers, etc. These problems are normally resolved by negotiation with the site owners and often the owner of the receiver experiencing the problem has to fix it.

(v) Amateur repeater receivers are not adequately protected by additional filters, etc and the receiver owners are responsible if the problem can be proven to be generated in the receiver. The interference is retransmitted by the repeater. The necessarily wideband design of modern front-ends exacerbates this problem.

(vi) Amateur portable and mobile receivers are susceptible to overload and consequently receive the strong pager signals direct.

(vii) Transmitter noise from the pager transmitters spreads out to over 1 MHz from the pager frequency at a level that desenses adjacent band amateur repeater receivers and it is this noise that the DoTC (SMA) suggests that amateurs spend over $2000 on filters to be fitted to the pager transmitters to remove it.

It is evident the amateur fraternity has no control over emissions originating in pager transmitters. The SMA should ensure that the emissions comply with the

WIA News

WIA Representation at World Radio Conference

At the last World Administrative Radio Conference, held in Spain, in 1992 (WARC '92), a decision was taken to hold more frequent conferences in order that the world telecommunications community could react more quickly to rapid developments in technology and the needs of changing regulatory requirements.

It was decided to hold World Radio Conferences at two year intervals, rather than every 10 years or so, and a WRC was planned for 1995. This will be held in Geneva, Switzerland, from 23 October to 17 November.

At the WIA Federal Convention at the end of April, ITU Conference and Study Group Co-ordinator, Dr David Wardlaw VK3ADW, presented a report on Australian preparations for WRC'95 and submitted a budget for attending this Conference with the Australian delegation, to represent the interests of Amateur Radio.

David Wardlaw highlighted a number of matters of concern to amateur radio on the agenda at that time, including among other things a foreshadowed move to have the amateur-satellite service formally included in world frequency tables, rather than being mentioned as a footnote, the operation of satellite earth stations and the amateur-satellite service, possible threats to amateur UHF bands from new service sharing proposals between 1000-3000 MHz, the effect of wind profiler radars close to our 50 MHz and 420 MHz bands, and work on the harmonisation of the amateur 7 MHz band.

At the July Extraordinary Convention of the WIA Federal Council, David Wardlaw reported on moves by the New Zealand authorities to suppress the ITU regulation that requires radio amateurs to have passed a test in Morse code before being licensed to operate below 30 MHz, a late development (reported in *WIA News* last month).

The WIA has gained membership of the Australian Delegation to WRC '95 and David Wardlaw will attend the Geneva Conference to help ensure Australia's favourable stance on amateur radio issues is pursued to further the interests of the Amateur Radio Service. The WRC '95 meeting will consider the agenda for the next Conference in 1997 and a preliminary agenda for 1999.

The cost of sending David Wardlaw VK3ADW to WRC '95 has been budgeted at just over $10,000 for the almost-four week-long Conference, contrary to highly inaccurate reports circulated which speculated a cost of $27,000. The costs of international representation are met from a levy of $2 from the annual subscription of each WIA Division member. Dr Wardlaw will take leave from his professional dental practice to attend WRC'95.

specification. The strong signals from these powerful transmitters below the specification level are the problem. However, there should be a way.

Australia is a signatory to the ITU (International Telecommunications Union) protocols and our government seems to always treat international agreements that it has ratified as being equivalent to Australian law. The pager specification used by Australia meets ITU standards, but there are other ITU regulations which should also apply.

ITU RR18-2 para 1812 states: *The out-of-band emissions of transmitting stations should not cause harmful interference to services which operate in adjacent bands in accordance with these regulations and which use receivers in conformity with Nos.301, 309, 310, 311 and relevant CCIR Recommendations.* These CCIR recommendations ensure that the receivers are of a reasonable quality.

ITU RR18-2 para 1813 states: *If, while complying with Article 5, a station causes harmful interference through its spurious emissions, special measures shall be taken to eliminate such interference.* ITU Article 5 refers to the technical characteristics of stations and the SMA technical specification for paging transmitters complies with this article.

What this means is that we can, therefore, expect to have to comply with the regulations of that agreement. It is not actual law to do so but the current government makes much of the fact that it does meet its international obligations. You would expect it to do so in this case. After all, ITU (revised) is one of the oldest international agreements to which Australia is a signatory.

Unfortunately, the SMA appears to think otherwise. I personally presented this case to the SMA and received the reply published below, with which I am far from satisfied. Are you?

Amateurs must "set their own house in order" first. We must take action to remove repeater receiver intermods. We must realise no-one can protect portables or mobiles from interference but we must do our best as equipment owners to protect our own receivers. Then, with SMA help, willingly or grudgingly given, we will achieve a satisfactory and equitable outcome to this entire sorry and protracted affair. This problem has gone on too long and too few have done too little to resolve it. The paging companies have used their muscle. Soon it will be the turn of amateurs to use their connections, and if necessary, their voting power. A Federal election is to be held within the next twelve or so months. Perhaps we should point out to the SMA that an incoming government of a different political complexion might look upon SMA with less favour than currently exists. Amateurs should not have to fight for a law to be enforced. Amateurs should not have to pay for an investigation into the wrong doing of any telecommunications conglomerates. In any event, I hope the WIA will show leadership.

Here is the text of the response received by Barry Sullivan VK2BZ from the SMA.

SMA Ref: X94/1358
Contact: Peter Allen
06 256 5376
Dear Mr Sullivan,

I refer to your inquiry to Mr Peter Stackpole relating to Australia's obligation as a signatory to the ITU and your inference that the SMA is bound to follow ITU protocols. I have received legal advice in relation to this matter which I am happy to pass on to you.

The fact that Australia is a signatory to an international treaty does not mean that the treaty, and any decisions made under that treaty, are binding on Australia in a legal sense. International law, of which treaties are a part, has a completely different character than domestic law.

Although treaty obligations should be considered when a power is exercised, as one of the many factors involved in the decision making process, this does not mean that the SMA must blindly follow a particular course of action merely because it puts into effect a commitment made under a treaty. The importance of a treaty obligation in exercising a power under the Radiocommunications Act may vary according to the circumstances of the case, but it will never be the only consideration.

The statement in your letter that "the SMA should have to apply that law without favour" is incorrect. I trust this satisfactorily answers your inquiry.

Yours sincerely

Peter Allen
A/g Manager
Technical Services Team
Customer Services Group
13 February 1995

I found the SMA letter to Barry particularly interesting. I don't necessarily disagree with the points made, as common sense and local domestic situations cannot be over-ruled just because Australia has a treaty with the ITU. However, there it is in writing from the SMA. To put it in my own words, the SMA are not bound to comply with ITU treaty agreements. Does this mean a code free licence below 30 MHz can happen in Australia?

**21 Waterloo Crescent, Lesmurdie 6076*
VK6UU @ VK6BBS

ar

VHF/UHF — An Expanding World

*Eric Jamieson VK5LP**

All times are UTC.

Activity

In the absence of letters, faxes or packet messages, it seems most of the continent must be quiet, possibly constructing additional equipment or waiting for the summer Es period; hence most news this month comes from overseas. If the incredible degree of summer activity in the northern hemisphere translates to similar summer activity in the southern hemisphere, then we are in for "a ball."

John VK4KK phoned to say that notice had been given of the first reverse sunspots, so it appears we have passed the low point between cycles and will now be climbing towards the peak of Cycle 23.

John also mentioned that he had noted 432 MHz contacts were recently completed between stations in Queensland and NSW to Noumea, but could not confirm. If such contacts have occurred, can anyone let me know the details please?

Beacons

A welcome letter from Karl VK6XW, who reports on the status of the VK6RTW beacons in Albany. Karl says, *I am the Beacon Officer for the Southern Electronics Group, VK6SR, and still run the beacon VK6RTW from my QTH. I always read your columns, which usually frustrate me when all these openings occur and I miss out, especially on 6 metres.*

You have complained before in your writing that this beacon is switched off during the winter, at least the 2 metre beacon; however, I watch the weather pattern very closely on TV, and when a pattern emerges like the one in June and again now over the past few days (August), the beacon is always switched on. Whether any contacts are being made I do not know. The chaps who use 2 metres and higher seldom come to the monthly meeting, there is very little traffic on the repeaters, and everybody, except me, is on packet these days. If I am going away, I usually get one of the other boys to switch on the beacon.

I have acquired a 50 watt solar panel and a bank of NIFE batteries, and by the end of the year I hope to come up with a reasonable power source for all the beacons, when the 6 metre beacon should also be on air. A power consumption of 100 watts will cost more than $100 per year, when drawing all from the mains. I am converting a Philips 828 for the 6 metre beacon as previous attempts to provide a reliable beacon over long periods have failed.

We have looked at the possibility of a new QTH for the beacons but this is not easy. We are either moving further away from the coast, are likely to attract vandals, or up against the cost. The last quote to go all solar in this location, with wind assistance, was $5000 to $6000!

Be assured, I will do all I can to keep the pot boiling in Albany. Since VHF is not good down here throughout the year, and HF is lousy from Albany compared with Narrogin, 300 km north, where I lived for 25 years, I am now involved in Intruder Watch.

Thanks Karl for outlining the beacon position. A letter like yours allows me to inform other amateurs, and provides answers to questions when they arise, often from overseas.

Winter Tropo

Charlie VK3BRZ writes that winter VHF operation was sustained due to a series of useful winter weather patterns. Though not entirely unusual, with a few more interested stations on air, particularly in central NSW, an increased number of contacts have been made.

On 12 August, together with Lee VK3PK, Barry VK3YXK and Bert VK3TU, he was operating the Geelong ARC station VK3ATL in the Remembrance Day Contest. Mindful of the presence of a high pressure system, he checked Channel 0 TV at Wagga on 51.740 MHz, and found it to be S9 and steady, indicating the presence of a tropo duct into VK2.

No replies were received to calls on 144.100, but he found Peter VK2BIT on 80 metres. Having often worked Peter via aircraft enhancement, they tried the direct path but failed to make contact.

At 1130 a phone call from Mark VK2EMA at Tottenham in central NSW, provided the news that he was hearing the Mount Anakie 2 m beacon at S6. Returning to two metres, a two-way contact ensued at S8-9, much to the surprise of the less informed operators then present. Further calls were made without result.

The following morning at 2230, Charlie VK3BRZ called VK2EMA and 5x9 signals were exchanged on two metres. On 70 cm they were almost as strong. Shortly after, Mark worked VK3TOP in Ballarat on 70 cm. Arie VK3AMZ also worked Mark, after which they conducted a three-way for half an hour, but no one interrupted for a contact. By Sunday evening, signals had dropped to around S2.

Charlie asked if the band was open to central NSW from VK5 at the time? No it wasn't, as best I can establish, but it was open on 28/8 when at 0011 I worked Mark VK2EMA at S2-3 on 144.100.

David VK3AUU sent an interesting letter to say that he had returned from an "unbelievable" trip, commencing on a train in Hong Kong, through China, across Asia to Berlin, then London, followed by six weeks touring Europe in a motor home.

In Frankfurt he met Jurgen DL3BWW, and was taken on a tour of the town and his moon-bounce shack. Jurgen asked that I give some publicity to the fact that there are many stations in VK who have the capability of using EME if they would only try. Any station running a pair of 4CX250s or the new Henry 3CX800 amplifier with a single Yagi, should have at least one hour on moon rise or set to work the better equipped European or American stations. If interested, contact David on 056 276 342

David visited G3IMV, whom he had worked on EME. John lives on the edge of the town of Bletchley and has worked all but eight European grid squares on 144 MHz with a pair of modest Yagis. He is also on six metres. While in Lucerne, David had a long conversation with HB9CRQ, who is also keen to contact VKs via EME.

Referring to aircraft enhancement, David writes, *From close-up observation in several 747s, I note that the condensation trails are not produced by the engines but appear to be generated where large pressure gradients occur on the wings, and the adiabatic expansion* (Dict: adiabatic = impassable to heat; occurring without heat entering or leaving system . . . VK5LP), *produces cooling and condensation of the water vapour.*

The VK3AUU antenna system for 144 MHz has been evaluated with the following results: 4 x 5.6 wavelength DL6WU Yagis; horizontal beam width 13 degrees; 1st side lobes -15 and -16dB; 2nd side lobes -18dB; vertical beam width 12 degrees; 1st side lobe -14dB; 2nd side lobe -24 dB; front to back ratio -21dB; calculated gain 21.0 dBd. With this array David has worked many EME stations.

Finally, David says, *I continue to be amazed at the number of times I am able to copy the Adelaide beacon on 144.450 despite its low power and the antenna pointing the other way. It was in again Monday night 20/8. It is 700 km away; need I say more!*

I am sure there would be more contacts between VK5 and VK3 if the Melbourne amateurs provided a beacon which we could hear, on a basis similar to the number of times they hear VK5VF. I can often hear the Geelong beacon, in and out of the noise, but that doesn't mean propagation exists to Melbourne. Now that VK7RNW is silent, what can we listen for in a south easterly direction? By the way David, the VK5VF beacon antenna is omni-directional.

Extraordinary Six-Metre Sporadic E

No, unfortunately, it is not here in Australia, but one would hope that something akin to what has been happening in the Northern Hemisphere during their summer, may be repeated this year in our summer.

Emil Pocock W3EP, in *The World Above 50 MHz in QST* for September 1995, heads his four pages of information in the above manner. He reports that June was an incredible month for sporadic E (Es). Six metres opened to Europe and Africa on 15 days for a total of nearly 60 hours. On two additional dates, North American stations worked the Azores, Madeira and the Canaries. He says, *There have been European openings every June for the past half-dozen years or more, but never have there been so many, or the coverage so widespread. Although the Northeast often had the better of many of these events, stations scattered throughout the eastern half of the country were able to get into Europe.*

Much sought-after stations as EH9IE (Ceuta and Melilla), EH6FB (Balearic Islands), IS0QDV (Sardinia), S59A and S57A (Slovenia), SP6RLA and other Poles, YO2IS and YO7VJ (Romania) and S0RASD (Western Sahara). In all, Americans and Canadians collectively logged more than 30 countries in Europe and North Africa.

As if this were not sufficient, they also had exciting openings to the Caribbean and Central America. On at least nine days, propagation favoured the south from much of the US. TG9AJR (Guatemala), HP2CWB and HP3/KG6UH (Panama) and HR6/W6JKV (Honduras) were sought by all, and with others, US operators logged at least 16 countries from the Caribbean region

Emil goes on, *Then there were the stations from the north! FP5EK (St. Pierre and Miquelon), VE8HL (just south of the Arctic Circle on Baffin Island) and OX3LX (Greenland) were in much demand from eastern USA and northern Europe. As always, not everyone worked every available station, as some did not necessarily have transatlantic propagation on dates when certain stations were available and so on.*

European TV video around 48.250 MHz gave first warnings to the US stations, but interestingly, not every video day brought transatlantic propagation, but it turned out to be an excellent indicator. Beacons on Azores CU3URA, Gibraltar ZB2VHF and Portugal CT0WW often appeared next and stayed in for the opening which usually followed. At times, the Es was quite selective as sometimes the W4s had the Europeans practically to themselves.

Emil prepared three charts which outlined the various openings. Two best days were 19/6 which had a first opening from 1350-1600 from W1 to EH, F, G, PA, ON, DL, I, S5, YU, OK, SP, YO, SV and CT beacon. Later in the day from 2015 to 0200 FP, VE1/2/3, W1/2/3/4/8 worked EI, G, GW, GI, GM, GD, F, PA, DL, ON, OE and LX beacon. On 27/6 W1/2/3/4 worked CT3, EH8, CT, EH9, 5T, S0, EH6, IS0, I, G, ON, DL, OE, S5, OZ, SM, SP and beacons SU and ZB.

On 7/6 K1TOL worked D44BC and was the only North American station to work the Cape Verde DXpedition. On 18/6 W5EU worked EH7CD around 1525 at over 8200 km. On 19/6 WA1OUB worked YU7FU, YO2IS and SP6GWB, while K1TOL logged YU7FV, YO7VJ, SP6RLA, SP6BTL and SV1DH. On 20/6 G and GW worked ZF1DC at 2300, and probably the most southerly North American station to make it to Europe during the entire month. Many of the contacts were three and four-hop Es, hence signals were weaker.

To the Caribbean, the two best days were 3/6 from 2000 to 2335 when W4/8/9/0 worked CO, ZF, KP4, V3, V4, TI, HP and YV. On 6-7/6 from 2030 to 0100 W1/2/3/4 worked C6, ZF, 6Y, TI, HP, KP4, V4 and beacons HI and FY. Most stations were strong SSB due to single-hop Es. During the month VE8HL on Baffin Island was worked by W2/3/4/5/8/9 and 0.

Emil said the Europeans were not often strong, and British and Dutch operators revealed that only the better equipped stations on both sides of the Atlantic were having consistent results, and most of their contacts were on CW. This has not always been the case, he said, as in previous years there had been huge pile-ups of European SSB stations with S9 signals both ways for more than an hour at a time.

Es contacts on two metres occurred on 3, 6, 11, 15, 17, 21 and 28/6 but generally they were one-hop affairs. However, seven days open on two metres is always acceptable!

All USA Grids

Emil W3EP confirms that Fred Fish W5FF has finally achieved his goal of working all grid squares in continental USA by working N1MLE on 19/6 for square 484. Emil writes, *W5FF deserves a big round of applause for his perseverance and great operating skill. His 1000 watts and six-element Yagi on a 75-foot tower at 7400 feet elevation no doubt helped. In all, Fred has 843 grids, and on the DXCC six metre ladder has 128 countries confirmed.* Congratulations to Fred W5FF.

Late News from the USA

Again from Emil, *On 1 and 2 July, KH6HME worked into Oregon and Washington on 144 MHz, via the Pacific duct, for what appears to be a new tropo distance record and the first time Seattle-area stations have heard Hawaii by this path. At the same time, 6 metre stations from British Columbia to California had several hours of sporadic-E propagation to Japan. Some stations in the Pacific Northwest logged more than 100 Japanese in all call districts. Details next month!*

With regard to the above, Geoff GJ4ICD reported a message from VE7SKA that on 2/7 at 0615 Merle W7YOZ worked Paul KH6HME on 144 MHz SSB at 5x7, also two others worked him from the same grid. Paul was in for about 45 minutes.

Europe

Ted Collins G4UPS sent page after page detailing his many six metre Es contacts for July. It reads like a story book, a never-ending saga! One cannot but feel envious that so much happens in the northern hemisphere; by comparison we are so limited. The vast area of the Pacific has few operators, Africa and South America appear to be too far away and probably would require five Es-hops, which would seem unsustainable over an all-water path — the Europeans find four hops not easy to work.

Ted commenced his holidays late July, but to 21 July he had logged 28 beacons, including VO1ZA, W2CAP/1 and WZ8D/b, and the following 53 call areas 4Z4, 5B4, 5T, 9A, 9H, CN, CS0, CT, DL, EH, EH6, EH7, EH8, EI, ES, F, HB9, HV3, I, IS0, IT9, K4, K5, K8, KP4, LA, OE, OH, OK, OM, ON, OZ, PA, RA3, S0, S55, S59, SM, SP, SV, T97, UT, VE1, VE3, VE9, VO, VY2, W3, W9, WA1, YL, YO, YU. Its enough to make anyone's mouth water!

WIA News

Cutting the Cost

In 1994, the WIA Federal Council prepared and passed a budget for 1995 which aimed to cut the cost of the Federal company operations, and reduced the "Federal component" of each Division member's subscription by $5, providing a larger slice of the "subscription cake" for the Divisions. Changes in the Federal secretariat operations in Melbourne saw reduction of a number of costs there, and a reduction in total Federal Convention costs was foreshadowed. While the practice of holding quarterly conventions of the Federal Council was started five years ago, for various reasons, there were five meetings called in each year from 1992 through 1994, with an attendant increase in costs.

However, in 1994, the 1995 WIA Federal budget for the first time included an amount for SMA Liaison expenditure. At the July Extraordinary Convention of the WIA Federal Council this year, it was decided to plan for only two meetings to be held between each annual Federal Convention, which has to be held by law within five months of the end of the previous financial year (1 January to 31 December, for the Institute).

The next Extraordinary Convention of the Federal Council is to be held over the weekend of 28-29 October. This, barring unforseen circumstances, will be the fourth this year, so the cost of having five meetings, as has happened in preceding years, will not be reflected in this year's expenses.

The location of the October Convention has not been decided. The cost of holding the July meeting in Sydney was only marginally greater than the previous meeting in Melbourne.

A draft budget for 1996, presently being drawn up by the Federal Executive, will be considered by the Federal Council at the October meeting. It is already anticipated that printing and production costs for *Amateur Radio* magazine will rise next year.

Ted said, *It was widely reported that a GW station on 7 July had worked a Brazilian station PT1WWS. Sad to say that if you write down the dits and dahs for that callsign they can also be read as WA1AYS who was very active that day!*

Cape Verde 95

Geoff GJ4ICD and Anthony GJ7DTA travelled to Cape Verde Islands and joined Julio D44BC from 1/6 to 13/6 for a six metre stint. The cost to the two GJs was about $4000 each. 26 countries were worked, best DX at 5995 km being to SM3EQY on 6/6. Another good contact was V44KAO for country 25, a distance of over 4000 km. He was S9+ and running three watts!

The 26 countries worked were 5T6, 9A, CT, CT3, CU, DL, EH, EH8, F, FG5, G, GD, GI, GJ, GM, GU, GW, HV, I, K1, ON, OZ, PA, SM, V44, VP2, most of which were over 4000 km.

Thanks to Geoff GJ4ICD and *Six News* August 1995 for the above abridged information. I noticed on page 45 a picture of Geoff at the top of a tower, working on an antenna without a safety-belt. Tut! Tut!

Closure

Some news has been held over until next month, particularly an interesting letter from Quentin VK3DUQ.

Closing with two thoughts for the month:

1. Sometimes the man of action is a fellow who just got both feet in hot water, and
2. In growing older, we're supposed to get more like a peach inside, as we get more like a prune outside; otherwise, what's the point?

73 from The Voice by the Lake.

*PO Box 169, Meningie SA 5264
Fax. (085) 751 043
Packet: VK5LP@VK5WI.#ADL.#SA.AUS.OC*

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

A E (Eddie)	DRISCOLL	VK2BI
W H	IRWIN	VK3WE
R J (Bob)	MILLGATE	VK4ADZ

Albert Edmund (Eddie) Driscoll VK2BI

Eddie passed away in the Tamworth Hospital on 28 August 1995 aged 81 years. Eddie lived all his life in Quirindi where he attended school and served his apprenticeship as a plumber with his father, A E Driscoll and Sons. In 1940 he married Freda Austin, a Quirindi girl.

While in his late teens, prior to 1933, Eddie obtained the callsign VK2KN. After WW2 he was allocated the callsign VK2BI which he held until his death. For the last 25 years, at 11.00 am on a Sunday morning, he would "chew the rag" with his mate Murray Parkinson in New Zealand. Eddie could possibly have been one of, if not the longest, active radio amateur in New South Wales.

Eddie is survived by three daughters, Beryl, Robyn and Julie, and their families, to whom we extend our sincere condolences.

W J (Bill) Perry VK2XWP

Marc Weston VK2CM

Marc became a Silent Key on 21 July 1995. He was licensed pre-war in Queensland and served as a marine radio officer for some years during WWII. Near the end of the war he joined Qantas Empire Airways as a radio officer, being one of a small band of operators flying the Perth to Colombo Indian Ocean service.

As a good amateur, he and his wife both enjoyed the amateur bands with their many friends. Living at Bateman Bay and Sydney he expressed interest in lots of things, particularly flying and radio operating.

The last five years he was dogged by ill health and welcomed visits by his mates. He passed away peacefully, a good amateur and a good Australian.

Gordon Lanyon VK2AGL

Post War Television

Continued from page 20

we first installed their TVs, we were now becoming less welcome. No more smiles. No more tips!

The main reason for this problem was the substitution of mica with a synthetic mica. Japan had control of the sources of mica during the war and Britain had had to use a substitute. The EHT transformers and picture tubes that EMI had made for the refurbishing of the TV sets had used an inferior substitute for mica. EMI insisted that, as they had a store full of EHT transformers and picture tubes, they had to be used first before they would get any better ones.

It was a very bad time and I can remember changing EHT transformers five times at about monthly intervals on one particular customer's set. He gave up after the fifth change and bought a set from another company.

Raw materials for the domestic market were in very short supply when the war ended, and the government decided to allocate raw material to the various firms on the basis of their prewar production. EMI, with its many companies in the radio and associated industries, received the lion's share of raw material. People like Pye and the others, who were relatively small prewar but had become big companies during the war, were handicapped through these postwar supply conditions.

EMI decided to carry on making the same range of sets that they had made prewar. The other companies decided to take advantage of the many discoveries, new techniques and materials that had been used and developed through five years of war. Where EMI were using the large prewar valves, Pye was using miniature valves, and instead of using EHT transformers they utilised line flyback for their picture tube EHT. They also did away with the mains transformer. The new sets that Pye and others put on the market were very much lighter, more compact, better and cheaper than the EMI models.

I stayed with EMI until March 1949 when I resigned to come to Australia with company recommendations of my television expertise, only to find that there was no TV here and it was to be seven years before it would arrive. In the meantime, I had to live and needed a job to live. In January 1950 I joined the Long Range Weapons Establishment at Penfield, South Australia as an Experimental Officer and that put an end to my television career.

1290 North East Road, Tea Tree Gully, SA 5091

WIA News

Further Feedback From the Spectrum Management Agency

The Spectrum Management Agency (SMA) has provided further feedback to questions the WIA asked of it at the last joint meeting in May. Last month *WIA News* reported that, of 18 action items arising from the meeting, eight had yet to be completed by the SMA as of the end of July. Two letters received from the SMA in August have cleared a further four action items.

A number of issues were clarified regarding the operation of the Amateur Examinations Service. While most of these relate to internal security and procedural issues, the SMA did provide an answer to perhaps the most important issue, and that is — a clear summation of the objectives of the examination system. As provided by the SMA, these are:

- To conduct a visible examination system free of patronage and favouritism and which complies with established policies, plans, procedures, instructions and applicable statutes and regulations.
- To maintain accurate and complete records of the bank of exam papers, completed answer sheets, students and examiners.
- To administer the above in accordance with the agreed Memorandum of Understanding.

At the May joint meeting, the WIA sought from the SMA responses to comments the Institute provided on the draft Technical Licence Specifications (TLSs) through 1994 and earlier this year, before they were finalised and gazetted. Comments relating to simple errors and omissions were all acted upon, where relevant, the SMA said, while a number of clauses were amended to clarify the intent. The draft Amateur "Information Paper" was also amended . . . *in line with comments received.* A copy of the revised Information Paper has been sent to the Institute.

The WIA had queried the TLS clause relating to "Operation of an Amateur station by a qualified operator", and suggested altering it to include mention of the attendance of the qualified operator. The SMA considered this not necessary . . . *because this was covered in the Regulations applicable to Amateur Stations.*

Objections were raised by the WIA over restrictions in the TLSs on connection to the telephone network. The Institute wanted these restrictions removed or reduced. The SMA advised that . . . *these restrictions are considered necessary to prevent unauthorised operation of Amateur stations operating in the "automatic" modes.* This means computer-controlled modes, such as packet radio. The WIA is pursuing this issue further with a submission seeking modification of this restriction. In responding to the draft TLSs, the WIA sought extension of the Limited TLS to provide operation for Limited licensees on the 10 metre band from 28.7 MHz to 29.7 MHz, all modes. The Institute argued, among other things, that limiting the operating mode to wideband FM only and restricting the frequency range to 29-29.7 MHz was too restraining, limited the opportunities for experimentation, inhibited exploration of anomalous propagation modes on 50 MHz because it denied access to the 28.885 MHz 6 m liaison frequency, and fostered crowding.

The SMA said that restricting Limited licensees to 29-29.7 MHz FM reflected . . . *requirements for operation under 30 MHz and use typical of (the) band.*

For the Novice Limited TLS, the WIA also sought, among other things (subsequently granted), extension of the 2 m packet segment to cover 144.690-145.210 MHz, to accommodate inaccuracies in operation. However, the SMA retained the 144.692-145.208 MHz allocation for Novice Limiteds, considering the asked-for extension unnecessary.

The Amateur Beacon and Repeater TLSs have not been finalised as of mid-August as they were still with the Attorney-General's Office of Legislative Drafting. The SMA has promised the Institute copies of the drafts for comment as soon as they are received.

At the WIA-SMA meeting in May, some time was spent discussing the issue of log book requirements for amateur club stations, which the Institute raised with the SMA. The SMA has said that the requirements for club stations to maintain a log book will be applied to club station licences by way of a "special condition". This reads as follows:

The licensee of a club station shall keep a log book in which must be entered:

(a) a chronological record of all transmissions (including time/date);

(b) the frequency and time of emission used;

(c) the station(s) communicated with; and

(d) the name and call sign of the qualified person operating the station.

The SMA is still to finalise a new draft of the Memorandum of Understanding (MOU) for the Amateur Examinations Service. This was awaiting a response from the WIA regarding the definition of "remote areas", where the need to have three accredited invigilators attend examinations could be relaxed. The SMA provided the Institute in June with three options to choose from. The WIA July Extraordinary Convention considered the SMA's options and the Federal Council chose what was considered to be the most administratively simple one. That is: *A Remote Area will be classed as an area/community which is included in either Zone A or Zone B, as described in the Income Tax Assessment Act 1936 (ITAA).*

The Amateur Examinations Service MOU is still with the SMA's legal department.

HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column, the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

μV in 50 ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4
0.78	S3	-2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 13.

ar

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	15.9	15	13.2	0	18	8	-4	-22
2	16.3	15	13.8	1	19	9	2	19
3	16.3	15	13.7	4	20	10	-1	-19
4	16.4	16	13.6	9	21	11	1	19
5	16.1	18	13.2	17	23	11	-2	-21
6	14.9	21	12.1	32	23	7	-8	-31
7	13.4	24	10.6	42	20	0	19	
8	11.8	26	9.4	43	14	11	-35	
9	10.3	29	8.2	43	4	-27		
10	9.3	31	7.3	42	-5			
11	8.5	31	6.7	39	-14			
12	8.0	32	6.3	38	-20			
13	7.6	33	6.0	36	-28			
14	7.5	33	5.9	35	-28			
15	7.6	33	5.9	36	-28			
16	8.6	35	5.1	32				
17	8.8	34	5.2	32				
18	8.7	34	5.1	31				
19	7.1	28	5.4	28	32			
20	8.7	20	6.5	22	-11			
21	11.3	17	8.7	15	6	-15	-36	
22	13.5	16	10.5	8	14	-1	18	
23	14.8	15	11.8	4	16	4	-9	-30
24	15.6	15	12.7	1	18	7	-5	-24

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	19.1	11	15.5	-26	16	13	7	-4
2	19.3	11	16.0	-27	16	13	7	-3
3	19.9	12	14.9	-26	17	15	9	-1
4	19.9	12	16.7	-21	18	15	9	-1
5	20.0	13	16.5	-12	21	17	10	0
6	19.8	15	15.7	4	25	19	11	-1
7	17.6	18	14.0	21	28	17	6	-8
8	15.8	21	12.5	34	28	13	0	-19
9	13.9	24	11.0	40	23	6	-10	-33
10	12.0	27	9.5	42	17	-4	-25	
11	10.7	30	8.5	43	11	-14	-38	
12	10.1	31	8.0	43	8	-19		
13	9.8	31	7.8	42	5	-25		
14	9.2	32	7.2	41	1	-31		
15	9.0	32	7.1	40	0	-33		
16	9.1	32	7.0	41	1	-30		
17	9.0	34	6.1	38	-8			
18	9.2	33	6.2	38	-8			
19	9.1	30	6.2	33	-9			
20	8.8	22	6.5	22	-4	-34		
21	10.6	17	8.4	13	6	-14	-35	
22	13.9	15	10.8	0	14	3	-10	-30
23	16.5	13	12.9	-14	16	9	0	-14
24	18.1	12	14.4	-22	16	12	4	-7

VK EAST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.0	8	8.9	-1	0	-19	...	...
2	7.7	-4	5.9	-9	-6	-27	...	...
3	8.0	-6	6.2	-18	-4	-21	...	...
4	11.3	0	8.5	-36	2	-6	-18	-36
5	16.0	5	12.3	..	4	4	-1	-12
6	17.4	5	12.8	.	4	5	0	-9
7	17.8	6	13.1	.	4	6	1	-8
8	16.2	5	12.9	..	5	4	-2	-13
9	14.3	6	11.3	..	6	1	-7	-21
10	12.8	6	9.9	-26	5	-3	-15	-33
11	10.8	6	8.5	-13	3	-10	-25	...
12	9.6	8	7.6	-3	0	-19	-36	...
13	9.0	13	7.1	6	-1	-25	...	...
14	8.5	19	6.7	19	-4	-32	...	...
15	8.3	25	6.6	27	-5	-37	...	...
16	8.5	27	6.3	31	-4	-37	....	....
17	8.4	29	5.8	34	-5	-36	....	....
18	8.0	30	6.5	34	-9	.	....	....
19	7.5	31	5.3	33	-14			
20	8.0	30	5.4	34	-10		...	.
21	7.9	30	6.5	34	-10		..	.
22	7.8	25	6.3	28	-13			
23	7.3	16	5.2	15	-14			
24	7.9	10	5.7	6	-6	-35	.	.

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.1	12	6.2	9	-5	-30	...	...
2	8.6	7	6.5	0	-2	-24	...	...
3	11.8	10	9.3	-11	7	-4	-19	-39
4	16.5	11	12.5	-28	12	8	1	-11
5	18.0	8	13.3	...	9	8	3	-7
6	18.6	8	13.8	...	8	8	4	-5
7	18.8	8	13.5	...	8	8	4	-4
8	16.1	8	12.9	...	8	8	3	-7
9	16.9	8	11.9	-37	9	7	0	-11
10	16.1	9	10.6	-25	10	4	-5	-19
11	13.2	10	9.2	-14	9	-1	-13	-32
12	11.4	11	7.9	-4	8	-8	-25	...
13	9.9	13	6.8	8	2	-19	...	...
14	9.0	18	6.2	18	-2	-29	...	...
15	8.6	24	5.9	27	-5	-37	...	...
16	8.2	27	5.6	30	-9	...	...	...
17	8.1	29	5.6	33	-10	...	...	...
18	8.0	30	5.6	34	-10	....	....	....
19	7.9	30	5.6	33	-12	....	....	....
20	7.8	30	5.6	33	-13	....	....	....
21	8.4	30	5.8	35	-9	....	....	....
22	8.1	30	5.7	34	-9	....	....	....
23	7.8	24	5.6	25	-11	....	....	....
24	8.5	18	6.2	17	-5	-33	...	...

VK WEST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	7.7	20	6.0	20	-8	..	. .	. .
2	8.1	12	6.2	9	-5	-32	. .	
3	11.5	12	9.1	-3	8	-6	-22	
4	16.3	11	12.7	-20	13	8	-1	-14
5	17.8	9	13.9	-37	11	9	2	-8
6	18.6	8	14.2	...	10	9	4	-6
7	18.7	8	15.5	..	9	9	4	-6
8	18.4	8	15.1	...	9	8	3	-7
9	17.8	8	14.4	..	9	8	2	-9
10	16.3	8	13.0	-34	10	8	-2	-15
11	14.4	10	12.2	-20	10	2	-8	-26
12	12.6	12	10.0	-4	9	-3	-18	-39
13	10.9	15	8.6	8	6	-12	-32	
14	9.6	20	7.6	21	1	-24		
15	9.0	26	7.1	30	-2	-32		
16	8.8	28	6.8	33	-6	-39		
17	8.4	30	6.8	35	-7			
18	8.5	31	6.7	37	-6			
19	8.5	31	6.6	37	-6			
20	8.0	31	6.2	36	-10			
21	7.9	32	5.8	34	-15			
22	8.2	31	6.2	36	-9			
23	8.4	31	6.5	37	-6			
24	7.8	27	5.9	30	-12			

VK EAST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	22.7	13	18.8	-35	16	19	15	8
2	23.5	13	18.0	..	16	19	16	10
3	23.7	13	18.9	.	17	19	17	10
4	23.8	13	19.7	-39	16	20	17	11
5	23.6	13	19.3	-34	19	20	17	11
6	22.6	14	18.4	-24	21	21	16	9
7	21.2	15	17.1	10	23	20	15	5
8	19.6	17	16.5	13	28	21	12	0
9	18.0	20	14.4	35	31	19	8	-7
10	16.2	21	12.9	40	28	14	0	-19
11	14.9	22	11.9	44	25	8	-8	-31
12	14.0	23	11.1	46	23	3	-15	...
13	12.9	25	10.2	46	18	-4	-26	
14	11.8	25	9.4	45	12	-14	-39	
15	11.2	26	8.8	44	8	20	..	...
16	10.8	26	8.5	43	5	-25		
17	9.7	27	7.6	40	-4	...	...	...
18	8.2	28	6.3	35	-24		.	.
19	8.5	28	6.6	36	-19			
20	8.9	28	6.9	38	13	..	..	..
21	14.0	21	10.7	33	20	3	-14	-36
22	20.5	16	16.2	2	28	21	14	3
23	21.9	14	17.6	-15	23	21	16	7
24	22.3	13	18.1	-27	20	20	15	7

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	17.4	10	14.2	37	12	9	2	-9
2	17.6	10	14.6	...	11	9	3	-8
3	18.2	10	15.4	..	11	10	4	-5
4	18.2	10	15.2	...	11	10	4	-5
5	18.2	11	15.0	-39	12	11	5	-5
6	17.9	11	14.7	-31	14	11	4	-6
7	17.3	13	14.0	-19	16	11	3	-10
8	15.8	15	12.7	0	18	8	-2	-19
9	14.0	21	11.1	34	20	3	-14	-38
10	12.4	22	9.8	38	14	-9	-31	..
11	10.8	24	8.5	38	3	-27	..	..
12	9.7	25	7.7	38	-7	.	.	.
13	9.1	25	7.2	37	-14	.	.	.
14	8.6	26	6.8	35	-20	..	..	.
15	8.4	26	6.7	34	-24	.	.	.
16	8.5	26	6.7	34	-22	...	..	..
17	8.5	26	6.6	34	-23	...	...	.
18	7.9	26	6.1	31	-23	.	.	.
19	7.2	26	5.5	27	.	.	.	.
20	7.6	26	5.8	30	-38	.	.	.
21	9.6	25	7.3	36	-7	.	.	.
22	12.9	13	9.9	5	10	-5	-22	...
23	15.4	12	12.0	-14	13	5	-5	-22
24	16.7	11	13.3	-28	13	8	0	13

VK WEST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	20.7	13	16.6	-24	19	18	12	3
2	21.2	13	17.2	-32	18	17	13	4
3	21.6	13	17.9	-37	17	17	13	6
4	22.3	13	17.1	-39	17	18	15	8
5	22.4	13	18.7	37	18	19	15	8
6	22.5	14	18.6	-32	19	20	16	8
7	22.2	14	18.2	-24	21	20	16	8
8	21.3	15	17.3	-11	24	21	15	6
9	19.6	17	15.9	8	27	21	13	1
10	18.1	19	15.2	30	30	19	8	7
11	16.5	20	13.1	37	28	14	1	-18
12	14.7	21	11.7	41	23	6	-11	-35
13	13.4	22	10.7	43	19	2	23	
14	12.6	24	10.0	46	15	9	-32	
15	11.7	24	9.2	44	9	-19		
16	10.8	24	8.6	42	2	29		
17	10.5	25	8.2	41	0	-34		
18	10.2	25	8.0	41	-3	-39		
19	9.3	25	7.2	38	14			
20	8.0	26	6.2	32	-34			
21	8.4	26	6.5	34	27			
22	11.5	22	9.1	37	7	-20		
23	16.1	15	12.5	6	19	9	-2	-20
24	19.3	14	15.2	12	21	17	9	-1

VK EAST — EUROPE

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.4	7	6.1	-21	-2	-17	-35	...
2	8.1	-13	5.9	-26	-1	-15	-32	...
3	9.1	-12	6.7	-36	0	10	-23	...
4	11.2	-7	7.9	...	0	-4	-13	-28
5	13.8	-2	10.4	..	-1	0	-5	-16
6	15.7	1	11.8	..	-1	2	-1	-9
7	16.7	3	12.6	..	-1	3	1	-6
8	17.5	6	13.2	...	2	6	3	-4
9	17.6	8	13.6	...	5	8	4	-4
10	16.0	10	12.7	36	10	8	1	10
11	14.2	12	11.3	-19	12	5	-5	-20
12	13.0	15	10.3	-2	13	1	-11	-30
13	12.2	18	9.7	11	13	-1	-17	..
14	11.3	21	9.0	21	11	-7	-26	...
15	10.5	25	8.3	31	9	-14	-37	...
16	10.2	27	8.0	35	7	-18	..	..
17	9.9	28	7.8	38	6	-21	..	..
18	8.0	29	7.0	38	-1	-32	..	..
19	7.8	30	6.0	33	-13	..	..	..
20	8.2	30	6.3	34	-9	..	..	..
21	8.6	31	6.6	36	1	-33	..	..
22	9.1	31	6.9	21	2	-23	..	..
23	9.2	10	6.5	2	0	-21	..	..
24	8.7	0	6.2	-12	-2	-20	-39	..

VK SOUTH — EUROPE

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.2	2	6.5	13	0	-16	-35	..
2	8.7	-7	6.2	-24	-1	-15	-32	..
3	9.7	-8	7.1	-38	0	-8	-21	...
4	12.2	3	8.9	...	0	-2	-10	-23
5	15.1	0	11.1	..	-1	2	-2	-11
6	17.1	2	12.6	..	▒	3	1	-5
7	18.0	4	13.3	..	-3	4	3	-2
8	18.5	5	13.9	..	-1	5	4	-2
9	18.9	5	13.5	..	1	5	2	-8
10	14.9	5	11.8	..	▒	4	-2	-13
11	13.1	6	10.4	-35	▒	0	-9	24
12	11.3	8	8.9	-15	5	-5	-20	..
13	10.0	12	7.9	1	3	-15	-34	..
14	9.5	17	7.5	15	1	-22	..	..
15	9.0	24	7.1	27	-1	-31	..	..
16	8.9	27	7.0	32	-3	-34	..	..
17	9.1	28	7.1	35	-1	-33	..	..
18	9.1	29	7.0	36	-1	-33	..	..
19	8.5	29	6.5	35	-7	..	..	..
20	7.9	29	6.1	33	-13	..	..	..
21	8.4	29	6.4	35	-7	..	..	..
22	10.2	28	7.3	37	▒	-16	..	..
23	8.7	20	6.7	20	-1	-29	..	..
24	9.5	12	6.7	3	2	-18	-39	..

VK WEST — EUROPE

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.7	13	6.8	7	1	-19	..	..
2	9.1	3	6.5	-9	-2	-21	..	..
3	10.2	-1	7.3	26	0	12	27	..
4	12.9	1	8.7	..	2	-2	-11	-26
5	16.1	3	11.8	..	1	3	-1	-10
6	18.2	4	13.4	..	0	4	2	-4
7	19.2	5	14.1	..	-1	5	4	1
8	20.0	6	14.7	..	-1	6	5	0
9	20.4	6	15.2	..	0	7	5	0
10	18.8	6	15.1	..	3	7	4	3
11	17.0	7	14.3	..	7	6	1	-8
12	15.3	10	12.1	28	10	5	3	16
13	13.5	13	10.7	-5	12	1	-11	-30
14	12.2	17	9.7	11	11	-4	-20	..
15	11.5	21	9.1	25	11	-8	-28	..
16	10.8	24	8.5	31	8	-15	-38	..
17	10.2	28	8.1	35	5	-21	..	..
18	10.1	27	7.9	38	5	-22	..	..
19	9.9	27	7.7	38	4	-24	..	..
20	9.1	28	7.0	38	-3	-35	..	..
21	8.0	29	6.2	33	-13	..	..	..
22	8.5	28	6.5	34	-6	..	..	..
23	8.8	29	6.8	36	-4	-37	..	..
24	9.0	22	7.0	25	1	-30	..	..

VK EAST — EUROPE (long path)

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	10.0	4	6.7	-14	3	-9	-24	..
2	9.5	6	6.5	-7	2	-12	-29	..
3	9.0	9	6.2	1	1	-16	-37	..
4	8.7	14	6.1	10	0	-22	..	..
5	8.3	22	5.9	23	-2	-30	..	..
6	9.4	23	6.7	24	4	-19	..	..
7	11.5	24	8.5	30	15	-3	-20	..
8	11.9	23	9.2	23	17	2	-12	-33
9	9.2	14	7.1	7	5	-12	-31	..
10	8.9	4	6.8	-8	3	-12	-28	..
11	9.4	-1	7.4	-21	1	-11	-25	..
12	8.9	-10	7.0	-31	0	-10	-23	..
13	8.6	-15	6.9	-37	0	-8	-20	-39
14	8.9	-20	6.9	..	-1	-8	-19	-36
15	8.9	-26	6.8	..	-6	-12	-23	..
16	8.3	..	6.4	..	-14	-21	-34	..
17	7.8	..	5.9	..	-21	-30	..	..
18	8.4	..	6.3	..	-13	-20	-33	..
19	10.2	-14	8.1	..	-1	-4	-12	-26
20	13.4	-3	10.2	..	-1	0	-5	-16
21	14.3	0	9.7	..	0	1	-3	-13
22	12.6	0	8.5	..	2	0	-6	-21
23	11.5	1	7.7	-34	3	-3	-13	-29
24	10.6	2	7.1	-23	3	-6	-18	-36

VK SOUTH — EUROPE (long path)

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.1	-1	6.2	-16	▒	-15	-31	..
2	8.6	3	6.0	-6	-2	-21	..	..
3	8.1	6	5.7	2	-5	-28	..	..
4	7.9	12	5.6	10	-7	-34	..	..
5	7.7	21	5.6	21	-11	..	..	..
6	8.7	21	6.4	23	-3	-30	..	..
7	10.6	23	7.9	29	9	-12	-33	..
8	12.9	22	9.0	29	16	2	-13	-35
9	11.1	18	7.7	16	9	-8	-26	..
10	8.6	10	6.7	4	0	-21	..	..
11	8.8	3	6.2	-8	0	-16	-36	..
12	8.5	-4	5.8	-17	-1	-17	-34	..
13	8.2	-12	5.8	-25	-1	-14	-29	..
14	8.2	-21	5.7	-38	-4	-15	-29	..
15	8.2	-39	5.7	..	-12	-23	-37	..
16	7.9	..	5.6	..	-22	-33	..	..
17	7.8	..	5.5	..	-30	..	..	..
18	8.3	..	6.0	..	-22	-31	..	..
19	9.6	-23	6.7	..	-5	-9	-18	-33
20	12.4	-7	9.2	..	-2	-2	-7	-18
21	13.2	-4	9.2	..	-2	-1	-6	-16
22	11.7	-6	8.1	..	0	-3	-10	-24
23	10.6	-5	7.3	..	0	-6	-16	-33
24	9.7	-4	6.7	-28	0	-10	-23	..

VK WEST — EUROPE (long path)

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.7	-11	6.0	-29	-3	-14	-29	..
2	8.2	-10	5.7	-20	-4	-19	-36	..
3	7.7	-7	5.5	-12	-6	-25	..	..
4	7.6	-3	5.5	-8	-8	-30	..	..
5	7.4	1	5.4	0	-10	-35	..	..
6	8.4	7	6.2	3	-5	-28	..	..
7	10.2	12	7.6	7	3	-16	-34	..
8	12.4	15	9.3	10	10	-3	-17	-36
9	14.1	16	10.6	8	14	4	-8	-25
10	12.7	13	8.6	3	10	-2	-15	-34
11	10.0	8	7.4	-8	5	-10	-28	..
12	8.9	-4	6.5	-19	-1	-14	-30	..
13	8.8	-9	6.0	-27	-3	-14	-29	..
14	8.4	-17	5.8	-33	-3	-13	-28	..
15	8.1	-36	5.8	..	-12	-22	-36	..
16	8.2	..	5.8	..	-18	-27	..	..
17	8.1	..	5.8	..	-24	-32	..	..
18	7.8	..	5.4	..	-30	..	..	..
19	7.5	..	5.3	..	-34	..	..	..
20	8.1	..	5.8	..	-23	-32	..	..
21	9.7	-22	6.5	..	-6	-10	-19	-34
22	11.2	-11	7.9	..	-3	-5	-13	-25
23	10.2	-14	7.1	..	-3	-7	-16	-31
24	9.2	-14	6.4	-39	-2	-11	-22	..

VK EAST — MEDITERRANEAN

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.0	-2	6.9	-20	0	-15	-32	..
2	9.8	-6	7.4	-35	0	-9	-23	..
3	13.8	1	10.4	..	2	1	-5	-17
4	16.8	6	14.4	..	0	6	4	-2
5	21.9	7	17.1	..	-1	7	7	4
6	21.9	6	17.9	..	-2	6	7	3
7	21.0	6	17.1	..	-1	6	6	2
8	19.4	6	15.8	..	1	6	5	-1
9	17.8	7	14.8	..	5	7	3	-5
10	16.8	8	12.8	..	8	6	0	-12
11	14.0	10	11.1	-23	10	3	-8	-22
12	12.7	13	10.1	-8	11	0	-13	-33
13	12.0	19	9.5	14	13	-3	-20	..
14	11.1	24	8.8	30	12	-9	-29	..
15	10.5	26	8.4	35	10	-14	-37	..
16	10.3	26	8.1	35	9	-16	..	..
17	10.2	29	7.9	39	8	-18	..	..
18	9.3	30	7.2	37	2	-28	..	..
19	8.2	30	6.3	35	-8	..	..	..
20	8.6	30	6.6	36	-3	-36	..	..
21	11.5	28	9.1	41	15	-6	-27	..
22	10.8	25	8.2	29	11	-10	-32	..
23	9.4	15	7.3	10	3	-18	..	..
24	10.6	10	8.2	-7	6	-8	-24	..

VK SOUTH — MEDITERRANEAN

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.9	4	6.8	-8	0	-19	-36	..
2	9.7	-1	7.3	-24	1	-12	-28	..
3	13.9	3	11.0	..	4	1	-5	-18
4	18.3	7	14.8	..	2	7	5	0
5	20.1	6	16.9	..	0	6	5	0
6	20.2	5	16.7	..	-2	5	5	0
7	19.8	5	16.2	..	-1	5	4	0
8	19.1	5	15.5	..	0	5	4	-2
9	17.6	6	14.0	..	3	5	2	-6
10	15.5	6	12.3	..	5	4	-2	-13
11	13.6	7	10.7	-32	7	1	-9	-25
12	11.7	9	9.2	-12	6	-6	-20	..
13	10.3	14	8.2	7	4	-15	-35	..
14	9.7	20	7.7	21	2	-23	..	..
15	9.2	24	7.3	28	-1	-30	..	..
16	9.1	26	7.1	32	-2	-33	..	..
17	9.2	28	7.2	36	0	-32	..	..
18	9.2	28	7.1	37	-1	-32	..	..
19	8.7	29	6.7	35	-6	..	..	..
20	8.1	29	6.2	34	-11	..	..	..
21	8.7	29	6.6	35	-5	-39	..	..
22	9.6	29	7.5	38	5	-22	..	..
23	9.4	22	7.2	23	2	-23	..	..
24	10.7	16	8.3	8	6	-9	-27	..

VK WEST — MEDITERRANEAN

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.3	12	6.4	9	-7	-35	..	..
2	9.0	4	6.8	-6	-3	-24	..	..
3	12.7	6	10.1	-30	5	-2	-14	-31
4	17.5	7	13.4	..	7	7	2	-7
5	19.3	7	14.7	..	4	7	4	-2
6	19.4	6	16.2	..	2	6	4	-2
7	19.4	6	16.1	..	2	6	4	-2
8	19.2	6	15.7	..	2	6	3	-3
9	18.5	6	15.0	..	3	6	3	-5
10	17.0	6	13.7	..	5	5	0	-10
11	15.2	7	12.9	-37	6	3	-4	-16
12	13.6	10	10.8	-15	9	0	-12	-30
13	11.9	14	9.4	5	8	-7	-25	..
14	10.7	19	8.5	21	6	-16	-39	..
15	10.2	23	8.0	30	3	-23	..	..
16	9.8	25	7.8	33	0	-31	..	..
17	9.2	27	7.3	35	-3	-38	..	..
18	9.2	28	7.3	37	-3	-36	..	..
19	9.1	28	7.1	36	-4	-38	..	..
20	8.4	28	6.5	34	-11	..	..	..
21	7.8	29	5.8	31	-22	..	..	..
22	8.0	29	6.1	33	-16	..	..	..
23	9.8	29	7.4	38	2	-28	..	..
24	8.8	24	6.8	27	-5	-36	..	..

VK EAST — USA/CARIBBEAN

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	22.6	9	19.0	..	5	11	10	5
2	20.4	10	16.2	..	10	12	9	3
3	17.1	12	13.6	-32	13	10	4	-6
4	14.6	15	11.6	-7	15	7	-3	-16
5	13.3	19	10.6	12	17	4	-9	29
6	12.5	24	9.9	30	18	1	-15	-39
7	11.9	26	9.4	36	17	2	21	..
8	11.5	28	9.0	39	16	-5	-25	..
9	11.0	29	8.6	41	14	-8	30	..
10	10.2	30	7.9	40	10	15	-39	..
11	9.2	30	7.0	38	2	-27	..	..
12	10.1	30	7.7	40	9	17	..	..
13	10.7	28	8.4	40	10	-14	-38	..
14	8.9	25	6.9	26	0	-28	..	..
15	9.1	18	7.0	15	1	-23	..	..
16	9.2	8	7.1	-1	-1	-21	..	..
17	7.9	-4	6.1	11	-6	-27	..	..
18	8.3	9	6.4	-23	-4	-20	39	..
19	11.4	-3	8.6	..	0	-6	-17	-34
20	15.9	3	12.3	..	1	2	-2	-12
21	19.1	5	15.0	..	-1	5	3	-2
22	20.7	5	16.6	..	-2	5	5	0
23	21.4	6	17.4	..	1	6	6	2
24	21.9	7	18.1	..	0	8	7	3

VK SOUTH — USA/CARIBBEAN

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	20.5	9	15.3	..	5	10	8	2
2	20.5	11	17.2	..	11	13	10	3
3	18.2	13	14.4	-29	15	13	8	-2
4	15.4	16	12.2	-5	17	10	1	-13
5	14.0	20	11.1	14	19	7	-5	-23
6	13.1	▒	10.3	32	21	5	10	-32
7	12.5	26	9.9	37	20	2	-15	-39
8	12.1	28	9.5	40	19	0	-18	..
9	11.6	28	9.1	41	17	-4	-24	..
10	10.5	28	8.2	39	10	-15	-39	..
11	9.3	30	7.2	38	4	-24	..	..
12	9.4	29	7.4	37	2	-27	..	..
13	9.3	29	7.3	37	1	29	..	..
14	9.5	24	7.4	28	2	-24	..	..
15	9.5	17	7.3	14	1	-22	..	..
16	8.8	6	6.8	-2	-2	-23	..	..
17	8.2	-3	6.2	-13	-4	-24	..	..
18	8.8	7	6.6	25	-2	-17	-34	..
19	10.8	-4	8.5	..	0	-7	-18	-37
20	14.3	1	10.9	..	1	0	-5	-17
21	17.1	3	13.3	..	-1	3	0	-7
22	18.7	4	14.9	..	-2	4	3	-3
23	19.7	5	16.0	..	-1	5	4	0
24	19.9	6	16.5	..	0	7	5	0

VK WEST — USA/CARIBBEAN

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	19.3	7	15.7	..	0	7	6	1
2	19.5	9	16.0	..	3	9	7	2
3	17.0	9	13.4	..	7	9	5	-3
4	14.5	10	11.5	-36	10	7	0	-13
5	13.2	13	10.5	-18	12	5	-5	-21
6	12.4	16	9.8	1	14	3	-10	-29
7	11.7	22	9.3	18	16	0	-16	-39
8	11.4	27	8.9	32	17	1	20	..
9	10.9	29	8.5	37	16	-5	26	..
10	10.2	31	7.9	40	13	-11	-34	..
11	9.2	32	7.1	39	6	-21	..	..
12	10.2	31	7.7	41	12	-13	-36	..
13	9.8	31	7.7	40	8	-18	..	..
14	9.3	27	7.4	31	5	-22	..	..
15	9.2	20	7.3	18	3	20	..	..
16	9.2	13	7.1	5	4	-15	-36	..
17	9.5	6	7.4	10	3	13	30	..
18	8.8	-3	6.8	-20	1	-13	-30	..
19	8.2	12	6.2	26	0	13	30	..
20	8.7	-14	6.6	-36	1	-9	-23	..
21	10.8	-8	8.5	..	1	3	12	27
22	14.3	0	11.0	..	-1	1	-2	-12
23	17.0	3	13.3	..	3	3	2	4
24	18.5	5	14.7	..	-3	5	4	-1

HAMADS

TRADE ADS

● AMIDON FERROMAGNETIC CORES. For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please 14 Boanyo Ave Kiama) Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Aplha Tango Products, Perth

● WEATHER FAX programs for IBM XT/ATs *** "RADFAX2" $35.00, is a high resolution shortwave weatherfax Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder *** "SATFAX" $45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3.00 postage. ONLY from M Delahuntly, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 [illegible].

● HAM LOG v.3.1 — Acclaimed internationally as the best IBM logging program. Review samples. ..AR. "Recommend it to anyone"; The Canadian Amateur: "Beyond this reviewer's ab lity to do it justice. I cannot find anything to improve on. A breakthrough of computer technology". ARA: "Brilliant". Simple to use with full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just $59 (+ $5 P & P), with a 90 page manual. Special 5 hour Internet offer Demos, brochures available. Robin Gandevia VK2VN (02) 369 2008 BH fax (02) 369 3069. Internet address rhg@ozemail.com.au.

FOR SALE NSW

● OSCILLOSCOPE HWD 506 probe kit, instruction book, new condition, $175. Gordon VK2AVT QTHR (02) 580 4325.

● PACKET HARDWARE Paccom TNCs, Tiny 2 Mark II, $290, 320 DUAL port, $375; USCC 4 port modem cards, POA; CASSPAK 1200 simple modems, fully built and tested, runs TPK, Baycom, etc, $85, BAYMOD 9600 baud model $200. All prices for hardware include P & P REGISTERED software paKet 6.1, TNC termina program, $30, with manual, $555 includes P & P, BAYCOM 1.6 with manual, a TNC emu ation program, $35 includes P & P; SHAREWARE — TPK 1.82 Superpacket 6.10, PKTWin 2 1, JNOS 1 10J. TNOS 2.00 and other shareware titles available for $5 each plus $2 P & P Send SASE for complete price list or membership details Contact AAPRA VK2IN@VK2DAA or QTHR or (02) 489 4393.

● AMSTRAD laptop computer s/n 532-8718666, twin FDD carry case manuals, p/supply, ideal for packet, ready to go, $200 ono; LINEAR amplifier Marko 200 + HL, ideal 10 mtr mobile, $200 ono, purchased new A/Comms. Paul VK2NPH (049) 33 5995.

● HAM HIDEAWAY Mid Murray District near Swan Hill. 20 fertile irrigated acres of pasture and homestead. Run a few sheep to pay the rates and water bills and play with your antennae. Two roomed separate shack with HWS, outdoor shower and fuel stove Great doghouse. Windmill tower and 7 m free standing tower both laddered and about G5RV apart. A row of 60/70 ft gum trees a 160 m half wavelength away from the shack. A four bay machine shed/car parking. Fordson Supermajor tractor with near new rubber and several implements. 1500 bale hayshed. For the XYL, 16 squares of fine old homestead (20 squares including verandahs), 3 glass window doors to verandahs. Formal lounge with Coonara heater for winter and summer room for the hot weather, 3 BRs, tiled bath/shower. Solar fresh water HWS. All fresh from glass lined concrete tank to kitchen and hand basin. Dam cold to shower, toilet and laundry. Fans in two BRs. WIWO, $68,000. Further particulars call Max VK2CMS (050) 30 2464 or (03) 9354 5130.

● AVO Wiester CT160, $275; VTVM CT38, $150; MARCONI sig/gen TF995, $175; TF801, $375; TF2011, $275; TF2002, $800; HEWLETT Packard 412A DC/VTVM, $175; 425A DC Micro volt, $175; 430C/477B power meter, $475; 410B RF VTVM, $175. Peter VK2CPK (02) 605 4790.

● YAESU FT901D, desk mic, spare set valves, manual and w/shop manual, gc, $750; YAESU Y0901 multiscope, gc, $250; YAESU FV901DM VFO, 40 mem, gc, $250; YAESU FT209RH 2 m txvr, nicads, speaker mic, charger, car adapter, psu, never used, $425, YAESU MD-1B8 desk mic, gc, $100; PALOMAR HF 200 W linear amp, $200; HI MOUND key model MK701, never used, $85; HOME BREW roller inductor ATU, $125. Peter VK2DBI QTHR (063) 67 5095.

● YAESU 2 m linear amp FL2050, IHO20094, instr sheets, $150; YAESU 207R handheld t/m, OK120265, instr man, battery charger, $100; REGULATED power supplies, Ferguson Transwest, 13.8 V 2 amp, $45 ea; REALISTIC dynamic desk mike, $30; ARLEC batt charger 240 to 6-12V, $20; KINGRAY low pass filter, $20. Licd Amats only, H Chapman VK2BHC (02) 664 1929.

● AMATEUR Radio Magazines from 1977 to 1994 plus many Amateur Radion Action, about 250 copies, in all. The lot for $200. Frank VK2BFC QTHR (02) 9948 7111.

● YAESU FT230R 2 metre FM transceiver, 25 W output, $350; FT730R 70 CM FM transceiver, 10 W output, LCD display, two VFOs, scanning microphone, ten memory channels, $290. John VK2KOJ (049) 54 0323.

FOR SALE VIC

● KENWOOD TS520S, good condx, with narrow CW filter, mic, etc, $450. Ron VK3OM QTHR (059) 44 3019.

● IBM compatible 286 16 MHz computer, 4 Mb memory, 287 maths co-processor, 40 Mb IDE hard disk, 1.2 Mb floppy, 2 serial 1 parallel port, EGA video card, Mono monitor, ideal for packet station, satellite tracking, Yagi design, etc. $200 or will consider swap for FRG-7 or other ham equipment Ben VK3KBC (053) 68 7460 Myrniong.

● TH3JR triband beam. KENPRO KR400 rotator, 240 V controller and cable. Can deliver Melbourne, $350. 28 MHz modified CB Johnson Viking 352D, 23 ch, SSB, $100; TS520S HF transceiver, good goer, $425, also can deliver Melbourne. Max VK2CMS (050) 30 2464 or (03) 9354 5130.

● KENWOOD TS940S HF transceiver, inbuilt auto ATU, includes all options $2,850.00; KENWOOD SP940 selective frequency monitor loudspeaker with inbuilt 12 V/2 A DC power supply unit, $200; KENWOOD SM-220 station monitor complete with BS-8 adaptor $500. All in good condition, complete with manuals. Doug VK3CCY QTHR (03) 9583 4462.

● APPLE 2E computer, 2 disk drives, packet software and manuals, good order, $120; RAINBOW Computer, good order, some software, OK for packet dumb terminal, $20. Murray VK3EZM QTHR (03) 9803 1971.

● ICOM AH-7000 discone, VGC, $100; TS520S, GC, with DC/DC cnvtr, s/n 631254, $450; MFJ 962C 1.5 kW ATU, as new, $450; DIAMOND MX2000 triplexer, $100; TS440 S/AT, VGC, 1.8 kHz filter, s/n 9110294, $1,100. Damien VK3CDI (054) 27 3121

● KENWOOD TS120S, s/n 41676, $400; Cradle, $30; KENWOOD AT130, s/n 1032130, $100, KYOKUTO 2 m, s/n 5318, $150; GALAXY III HF, s/n 4908M747, not going, $100; TH3 Jr, incomplete, $50; OSCARBLOCK SWR200, $80, LEADER sig gen, $120; WHIPS 80, 40, 20, $60 set, LINEAR kit 813, PM & fil trans, $80; MORSE key, $30. Alan VK3ADK QTHR (03) 9337 7332

FOR SALE QLD

● SPIDER 4-band antenna, USA, mobile/maritime/restricted space, as new, $200 ono; G-WHIP "multimobile 78", 4 bands, $80; DENTRON ATU, 300 W, $30, YAESU dyn desk mic MD1, $80; HI-MOUND straight key HK-706, $40. Hans L40370 (074) 79 4561

FOR SALE SA

● ANTENNA 8 EL log periodic for HF bands 10-30 MHz continuous with hardware, instructions, good condition, $450 plus freight. Offers considered "Too big for my yard" Paul VK5MAP QTHR (086) 51 2398.

● YAESU FT107M & FTV107 ext VFO, s/no's 1F090261 & OH040107, DMS, WARC bands, new finals, very clean unit, manuals, $600 ono. LAO. Les VK5BM (085) 84 6402.

WANTED USA

● WESTERN ELECTRIC vacuum tubes. Examples; I pay VT52 $50, 205D $90, 211E $90, 274A/B $80, 252A $250, 300A/B $210, 350B $80, 348A $25, 349A $25, 271A $60. All types wanted. New or used. Also other brands wanted like RCA, STC, etc. Tim Metz, 221 Wheatland, Fairview, OK 73737, USA or phone 0011 1 405 227 2456, fax 0011 1 405 227 4602.

WANTED NSW

● YAESU FT767GX transceiver with or without 6 m, 2 m and 70 cm plug-in modules. Ric Havyatt VK2PH (02) 817 0337.

● KENWOOD PS50 power supply & SP430 speaker. Ken VK2SX (02) 413 1846 or pager, (02) 214 1111 quote 204557, anytime.

● MANUAL Collins 618T-3 system, also VALVE EA53, Nuvistor 8058, also 7895. Thermistor mount HP478A. Peter VK2CPK (02) 605 4790.

● TRANSFORMER 10 volt 5 amp, also socket for 813. Ben VK2AJE (044) 57 3220 anytime reverse charges.

● SWAP FOR ICOM 735, or similar HF rig, Panasonic MS50 S-VHS-C Hi-fi video camcorder (vgc except mic needs fixing), good for ATV or family movies. Kevin VK2GSU QTHR (043) 28 4854.

● COPY CIRCUIT or manual AWA modulated oscillator type C1070, Circa 1935, 100 kHz to 15 MHz, six range, two 30 valves. Stan Dogger VK2KSD QTHR (066) 77 9292 AH.

● MORSE KEYS old and new, plus any information relating to Morse code. Steve VK2SPS (02) 9999 2933 after 6.00pm.

WANTED VIC

● HY-GAIN 203 or 204BA, any condition or any bits thereof to repair mine. Ron VK3OM QTHR (059) 44 3019.

● COPY operating manual Kenwood TS670 quad bander. Will cover expenses. Damien VK3CDI (054) 27 3121.

● ARMSTRONG AM/FM receiver, model 226, circuit or any technical information, all costs met. Peter VK3DU QTHR (03) 9489 1385.

● PRINTER, Oki DP-125 for spares, also instr/h'book for same. Will copy and return or pay for photostats. John VK3ZA QTHR.

● WANTED for photocopying, instruction book and circuit diagram for Yaesu FV101Z external VFO. Guaranteed return and/or all expenses covered. Ross VK3WAC QTHR (03) 9728 3597.

● HALLICRAFTERS SX28. Any schematics, handbooks or copies thereof for Hallicrafters SX28 receiver. Fair price paid, no problem. Max VK2CMS (050) 30 2464 or (03) 9354 5130.

WANTED QLD

● WANTED S/W receiver BC to 30 MHz, quartz synthesised, must have ext SW aerial connection. Please advise price and availability or circuit manual. VK4AO (066) 46 6587.

WANTED SA

● EAT 300 Emtron tuner (not cross needle type) must be in good condition. Volt meter 0-20 V, 70mm x 70 mm, preferably Asia — Italia brand. Power lead to suit Kenwood TS130S, TS-440S. Paul VK5MAP QTHR (086) 51 2398.

WANTED WA

● CIRCUIT or info for TEAC stereo radio cassette recorder, model PC-25. Ron VK6FD QTHR (09) 362 1170.

MISCELLANEOUS

● THE WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards special issue. Please contact Hon Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350.

● INTERNET access at $25 per month. No volume or time charges, phone Don VK6DN or Data phone (09) 383 4925.

Remember to leave a three second break between overs when using a repeater.

Hamads

Please Note: If you are advertising Items For Sale and Wanted please use a separate form for each. Include all details: eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.
*Eight lines per issue free to all WIA members, ninth line for name and address Commercial rates apply for non—members. Please enclose a mailing label from this magazine with your Hamad.
*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.
*Copy typed or in block letters to PO Box 2175, Caulfield Junction, Vic 3161, by the deadline as indicated on page 1 of each issue.
*QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.
*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.
Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re—sold for merchandising purposes.
Conditions for commercial advertising are as follows: $25.00 for four lines, plus $2.25 per line (or part thereof) Minimum charge — $25.00 pre—payable.

State: .....

Not for publication: ❑ Miscellaneous ❑ For Sale ❑ Wanted

Name:..... Call Sign: ..... Address: .....

TRADE PRACTICES ACT

It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with **strictly.**

VICTORIAN CONSUMER AFFAIRS ACT

All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

TYPESETTING AND PRINTING:

Industrial Printing and Publishing Pty Ltd, 122 Dover Street, Richmond, 3121. Telephone: 9428 2958

MAIL DISTRIBUTION:

R L Polk & Co Pty Ltd, 96 Herbert St, Northcote, Vic. 3070. Tel: (03) 9482 2255

CONTRIBUTIONS TO *AMATEUR RADIO*

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. "How to Write for Amateur Radio" was published in the August 1992 Issue of AR. A photocopy is available on receipt of a stamped, self addressed envelope.

BACK ISSUES

Available only until stocks are exhausted. $4.00 to members, which includes postage within Australia.

PHOTOSTAT COPIES

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus $2.00 for each additional issue in which the article appears).

The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

ADVERTISERS INDEX

Trade Hamads

HOW TO JOIN THE WIA

Fill out the following form and send to:

The Membership Secretary
Wireless Institute of Australia
PO Box 2175
Caulfield Junction, Vic 3161

I wish to obtain further information about the WIA.

Mr, Mrs, Miss, Ms:.....

.....

Call Sign (if applicable):.....

Address:.....

.....

.....

State and Postcode:.....

WIA Morse Practice Transmissions

VK2BWI Nightly at 2000 local on 3550 kHz

VK2RCW Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm

VK3COD Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz

VK3RCW Continuous on 144.975 MHz 5 wpm, 10 wpm

VK4WIT Monday at 0930 UTC on 3535 kHz

VK4WSS Tuesday at 0930 UTC on 3535 kHz

VK4WCH Wednesday at 1000 UTC on 3535 kHz

VK4AV Thursday at 0930 UTC on 3535 kHz

VK4WIS Sunday at 0930 UTC on 3535 kHz

VK5AWI Nightly at 2030 local on 3550 kHz

VK5RCW Continuous on 144.975 MHz, 5 wpm to 12 wpm

VK6RCW Continuous on 147.375 MHz, 4 wpm to 11 wpm

VK6WIA Nightly at 1930 local on 146.700 MHz and nightly (except Saturday) at 1200 UTC on 3.555 MHz.

WIA Divisional Bookshops

The following items are available from your Division's Bookshop (see the WIA Division Directory on page 3 for the address of your Division)

	Ref	List Price
ANTENNAS		
Ant. Compendium Vol 2 Software 5.25" IBM Disk	BR293	$22.00
Antenna Compendium Vol 1 — ARRL Book	BR183	$26.00
Antenna Compendium Vol 2 — ARRL Book	BR292	$32.00
Antenna Compendium Vol 3 — ARRL Book	BR453	$37.00
Antenna Impedance Matching — ARRL	BR257	$52.00
Antenna Note Book W1FB — ARRL	BR179	$26.00
Antenna Pattern Worksheets Pkt of 10	BR902	$3.00
Easy Up Antennas	MFJ38	$39.25
G-QRP Antenna Handbook — RSGB — 1992 1st Edition	BR452	$22.50
HF Antenna Collection — RSGB	BR391	$44.00
HF Antennas for all Locations — Moxon — 2nd Edition	BR188	$45.00
Physical Design of Yagi — 3.5" IBM Disk	BR386B	$26.00
Physical Design of Yagi Antennas — The Book	BR386	$52.00
Practical Antennas for Novices	BR35	$18.50
Practical Wire Antennas — RSGB	BR296	$32.00
Reflections Transmission Lines and Antennas — 5.25" IBM	BR348A	$22.00
Reflections Transmission Lines and Antennas — ARRL	BR348	$52.00
The Antenna Handbook — ARRL 1994 edition with disk	BR370A	$65.00
Transmission Line Transformers — ARRL	BR329	$52.00
Yagi Antenna Design — ARRL	BR164	$40.00
BEGINNERS		
Amateur Radio for Beginners — RSGB	BR382	$13.50
First Steps in Radio — Doug DeMaw W1FB	BR385	$16.00
Help For New Hams DeMaw — ARRL	BR308	$26.00
Novice Antenna Notebook — DeMaw W1FB — ARRL	BR162	$20.00
Novice Notes, The Book — QST — ARRL	BR298	$16.00
Radio Theory For Amateur Operators — Swanston — 2nd Ed	BR265	$53.00
Understanding Basic Electronics	BR454	$38.00
WIA Novice Study Guide		$1.50
CALLBOOKS		
Australian Radio Amateur Call Book — 1995		$12.50
Ferrell's Confidential Frequency List	BR387	$40.00
Ham Call CD ROM US & International	BR498	$75.00
International Callbook 1995	BR339	$56.50
Nth American Callbook 1995	BR338	$56.50
Passport to World Band Radio	BR346	$48.00
World Radio TV Handbook	BR450	$40.00
DESIGN AND TECHNICAL		
Amateur Techniques — G3VA — RSGB	BR393	$30.00
Buckmaster Electronic Software CD ROM Compendium	BR497	$45.00
Design Note Book W1FB — ARRL	BR357	$26.00
G-QRP Circuit Handbook — G Dobbs — RSGB	BR441	$31.00
Ham Radio Communications Circuit Files	MFJ37	$24.95
Hints and Kinks — 13th Edition — 1992	BR330	$24.00
Solid State Design — DeMaw — ARRL	BR171	$32.00
Technical Topics Scrapbook — RSGB 1993	BR37	$35.00
HANDBOOKS		
ARRL Handbook — 1995	BR389	$66.00
Electronics Data Book — ARRL	BR201	$40.00
Radio Communication Handbook — RSGB 1994 6th Edition	BR266	$66.00
HISTORY		
200 Meters and Down 1936 — ARRL	BR198	$20.00
50 Years of the ARRL — 1981	BR196	$8.00
Bright Sparks of Wireless — RSGB	BR394	$44.00
Dawn of Amateur Radio — RSGB	BR395	$58.00
Footsteps of Marconi's — 1994	BR53	$49.95
World at Their Finger Tips — RSGB	BR38	$23.00
INTERFERENCE		
Radio Frequency Interference — ARRL — 1992 Edition	BR186	$40.00
The Radio Amateurs Guide to EMC	BR36	$25.00

	Ref	List Price
MISCELLANEOUS		
Beyond Line of Sight	BR459	$32.00
I Love Amateur Radio Car Bumper Sticker — RSGB	BR466	$2.75
I'm On The Air Sticker	BR466A	$2.75
Low Profile Amateur Radio	BR46	$20.00
QRP Classics — ARRL — QST	BR323	$32.00
QRP Note Book — DeMaw — ARRL	BR170	$26.00
QRP Operating Companion — ARRL — 1992 1st Ed	BR010	$16.00
Radio Auroras — RSGB	BR381	$30.00
Radio Buyers Source Book — ARRL — Volume I	BR377	$40.00
Radio Buyers Source Book — ARRL — Volume 2	BR3772	$40.00
Slow Scan TV Explained	BR39	$30.00
MORSE CODE		
Morse Code — The Essential Language	BR223	$16.00
Morse Code Tapes Set 1: 5-10 WPM — ARRL	BR331	$22.00
Morse Code Tapes Set 2: 10-15 WPM — ARRL	BR332	$22.00
Morse Code Tapes Set 3: 15-22 WPM — ARRL	BR333	$22.00
Morse Code Tapes Set 4: 13-14 WPM — ARRL	BR334	$22.00
Morse Tutor 3.5" IBM Disk	BR187A	$20.00
Morse Tutor 5.25" IBM Disk	BR187	$20.00
Morse Tutor Advanced 3.5" IBM Disk	BR328A	$60.00
Morse Tutor Advanced 5.25" IBM Disk	BR328	$60.00
OPERATING		
Amateur Radio Awards Book — RSGB	BR297	$30.00
DXCC Companion — How to Work Your First 100	BR345	$16.00
DXCC Country Listing — ARRL	BR388	$5.00
Locator Map of Europe — RSGB	BR396	$8.00
Log Book — ARRL — 9" x 11" Wire Bound	BR202	$9.00
Low Band DXing — John Devoldere — 2nd Edition 1994	BR185	$52.00
Operating Manual — ARRL — 4th Edition	BR192	$48.00
Operating Manual — RSGB	BR359	$31.00
Prefix Map of the World — RSGB (laminated)	BR397	$25.00
RTTY/AMTOR Companion ARRL 1st Ed 1993	BR45	$21.00
The Complete DXer — W9KNI	BR194	$32.00
Transmitter Hunting	BR222	$43.00
World Grid Locator Atlas — (Maidenhead Locator) — ARRL	BR197	$13.00
PACKET RADIO		
AX.25 Link Layer Protocol — ARRL	BR178	$20.00
Gateway to Packet Radio 2nd edition — ARRL	BR189	$32.00
NOSintro	BR468	$45.00
Packet Radio Companion ARRL 1993 1st Edition	BR285	$20.00
SATELLITES		
Satellite Anthology — 1994 3rd Edition — ARRL	BR478	$26.00
Satellite Experimenters Handbook	BR177	$52.00
Space Almanac — ARRL	BR299	$50.00
Space Radio Handbook — GM4IHJ — RSGB	BR439	$47.00
Weather Satellite Handbook — ARRL — 5th Edition 1994	BR324	$52.00
Weather Satellite Handbook Software 5.25" IBM Disk	BR326	$22.00
VHF/UHF/MICROWAVE		
Microwave Handbook Vol 1 — RSGB	BR318	$38.00
Microwave Handbook Vol 2 — RSGB	BR437	$57.00
Microwave Handbook Vol 3 — RSGB	BR447	$57.00
Spread Spectrum Source Book — ARRL	BR365	$52.00
UHF/Microwave Experimenters Manual — ARRL	BR325	$52.00
UHF/Microwave Experimenters Software — ARRL	BR327	$22.00
VHF Companion — ARRL	BR461	$21.00
VHF/UHF Manual — RSGB	BR267	$40.00
WIA MEMBERS SUNDRIES		
Band Plans Booklet		$2.80
WIA Car Bumper Stickers		$0.50
WIA Car Window Stickers		$0.50
WIA Log Book — Vertical Format		$5.00
WIA Tape — Sounds of Amateur Radio		$7.00

Not all of the above items are available from all Divisions (and none is available from the Federal Office).
If the items are carried by your Divisional Bookshop, but are not in stock, your order will be taken and filled as soon as possible.
Divisions may offer discounts to WIA members — check before ordering. Postage and packing, if applicable, is extra.
All orders must be accompanied by a remittance.
The prices are correct as at the date of publication but, due to circumstances beyond the control of the WIA, may change without notice.

ICOM

Count on us!

Icom's impressive range of receivers lets you listen to more frequencies, across the band and around the world.

Starting with one of the smallest receivers ever produced, the IC-R1 covers 100kHz - 1300MHz (2 ~ 905MHz guaranteed), with AM, FM and Wide FM modes, Dual Frequency Selection and 100 memories.

The IC-R72 receives 30kHz - 30MHz (100 kHZ ~ 30 MHz guaranteed) in SSB, AM and CW modes and comes with numerous impressive features, including Icom's DDS System to improve Carrier to Noise Ratio characteristics and optional FM mode.

IC-R9000

With an Icom receiver, the world is as wide as your band

The mobile IC-R100 is packed with powerful features, and covers the 100kHz - 1800 MHz (500 kHz ~ 1800 MHz guaranteed) range in AM, FM, wide FM modes with multi-function scanning and 100 memories with 20 scan edge channels.

While the IC-R7100 covers from 25 ~ 2000 MHz in SSB, AM, FM, wide FM modes, optional TV and FM stereo adaptor, with 900 memory channels, sophisticated timer functions and multiple scan functions.

The top of the range IC-R9000 expands your listening horizons, covering 100 kHz ~ 1999.8 MHz in all modes and featuring Icom's unique CRT display, intelligent scan functions and an amazing 1000 memory channels, in a unit that delivers superb high frequency stability, even in the GHz range.

So tune in to the ones that professional listeners use, from the wide range of Icom wide band receivers.

IC-R7100

IC-R100

IC-R72

IC-R1

For further information call free on (008) 338 915 or write to Reply Paid 1009 Icom Australia Pty Ltd P. O. Box 1162 Windsor Victoria 3181 Telephone (03) 529 7582 A.C.N. 006 092 575

ICOM Australia's warranty is only applicable to products purchased from their authorised Australian Dealers.

L.L. BROWN ADVERTISING 3907